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ON RHEUMATISM,

&c.

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ON RHEUMATISM

IN ITS VARIOUS FORMS,

AND

ON THE AFFECTIONS OF INTERNAL ORGANS,

MORE ESPECIALLY THE

HEART AND BRAIN,

TO WHICH IT GIVES RISE.

BY

RODERICK MACLEOD, M.D.

PHYSICIAN TO ST. GEORGE'S HOSPITAL.

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Dedication.

TO

WM. FREDERIC CHAMBERS, M.D. F.R.S. K.C.H.

&c. &c. &c.

My dear Doctor Chambers,

I have been induced by various circumstances to dedicate this little work to you.

The selection of your name for this purpose, which the place you hold in our profession makes a natural one, is rendered still more appropriate by the fact of our having been many years associated together as joint lecturers on medicine. But a much stronger motive presents itself to me, in the recollection

of the many acts of kindness and friendship which I have received at your hands.

For your sake and my own, I most sincerely wish the offering were more worthy of your acceptance.

I remain,

My dear Doctor CHAMBERS,

Ever faithfully yours,

RODERICK MACLEOD.

1, *Lower Seymour Street, Portman Square,*
DECEMBER 20, 1841.

PREFACE.

A PORTION of what is contained in the following pages formed the Gulstonian Lectures delivered at the College of Physicians in 1837. To these have been added various observations on general points, and the whole of what relates to the treatment.

Nothing would have been easier than to have doubled the size of the present volume by the insertion of cases, but the author has been anxious to avoid this (for reasons which those acquainted with modern medical literature will readily appreciate), and has, therefore, restricted himself to a few illustrations required to elucidate some particular subject.

The numerical returns and calculations are taken exclusively from cases which occurred under the author's care in St. George's Hospital, and of which public records have been kept. They are spread over twenty volumes, and extend from March 20, 1833, to Oct. 13, 1841 ; with the exception of a short period, viz. from Oct. 25, 1837, to March 14, 1838. This omission is owing to the circumstance of one of the Case Books (vol. xii.) having been lost, by which the numbers are probably diminished by about one-twentieth ; but there is no reason to suppose that by the recovery of the missing volume either the relative proportion of the different cases, or any of the inferences regarding them, would be at all affected.

The Case Books alluded to were kept by the clinical clerks, and are deposited in the Library of the Hospital.

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ON

RHEUMATISM.

CHAPTER I.

ATMOSPHERIC VICISSITUDES THE CHIEF CAUSE OF RHEUMATISM —EFFECTS OF HEREDITARY PREDISPOSITION — RELATIVE PREVALENCE ACCORDING TO SEX AND AGE—FIBROUS TISSUES THE CHIEF SEAT OF RHEUMATISM; SUPPOSED CONTINUITY OF THESE; SYMPTOMS—PAIN THE MOST GENERAL, BUT NOT UNIVERSAL—DIVISIONS OF RHEUMATISM.

Rheumatism, in common with other inflammatory affections, is held to be most rife during the winter; but this, although true in the main, is much less remarkable than with respect to most inflammatory diseases. Dr. Haygarth, who gave considerable attention to the subject, estimates the proportion of cases of rheumatism occurring in summer to those occurring in winter as five to seven; and I may add, that the attacks during warm weather are frequently

quite as severe as those which take place at more inclement seasons of the year. In fact, it would appear that the cause of acute rheumatism is not to be sought for so much in any abstract degree of cold, as in atmospheric vicissitudes ; so that exposure to the cool air of an evening which follows a hot day, is often sufficient to produce an attack of acute rheumatism, particularly if the atmosphere has become charged with moisture. Some, indeed, have supposed that other agents besides cold and moisture come into operation, and that malaria gives noxious energy to the influence of the air ; but when we consider that rheumatism occurs under almost every variety of situation,—often, certainly, where there is no reason to suppose any malaria to exist,—and when we see it immediately following the application of cold and moisture, without the concurrence of any other obvious circumstance, it appears to me quite unnecessary to have recourse to other causes, the very existence of which is in many cases entirely hypothetical.

But it has further been supposed that, in order to produce rheumatism, some peculiar state of the individual—some constitutional predisposition—was required. In reference to this we may say, that whatever considerably reduces the general tone and vigour of the body, renders the individual more liable to rheumatism, but not apparently to a greater degree than with respect to other inflammatory attacks ; the

constitutional change being that of a diminished power of resisting disease in general—not rheumatism in particular. There are, however, two circumstances which enable us to know that one individual is more liable than another to rheumatism: the first is, his being descended of parents who have suffered from the disease; and the second is, he himself having had it before.

With regard to the hereditary peculiarity which causes this proneness to rheumatism, although we may be at a loss to point out in what it consists, its existence, I think, admits not of doubt: indeed, it is stated by Chomel, as the result of specific investigation on this point, that of a large number of patients treated by him at La Charité for rheumatism, not less than one-half were the offspring of rheumatic parents.

Having suffered from rheumatism once, gives but too great a probability of suffering from it again; and it will rarely be found that an individual who has had rheumatic fever, lives many years without experiencing its recurrence: so that many persons suffer from the acute form of rheumatism several times in the course of a few years,—while with respect to the chronic form, we meet with some subjects in whom this disease in a greater or less degree is scarcely ever entirely absent. I know no certain indication of an individual having what may be called the rheumatic diathesis, except the disease having mani-

fested itself; nor is it easy to conjecture in what that peculiarity of his organization consists, which, in the first instance, gives to one man a greater liability than another to become affected with rheumatism. But after it has once displayed itself, it requires no great stretch of imagination to conceive such change to take place, either in the physical condition or in the mode of action in the part attacked, as shall leave behind it a permanent disposition to resume the rheumatic state,—just as we observe that one who has had cynanche tonsillaris, or almost any other inflammation, is prone to have a recurrence of such disease.

Rheumatism in its acute forms is more prevalent among men than women; but I think the difference in this respect is not greater than the circumstance of the latter being less exposed to its exciting causes is sufficient to explain, without supposing any innate difference in the relative degrees of constitutional predisposition.

The early period of adult age is that at which the greatest number of cases of rheumatic fever present themselves; and here also it is probable that the circumstances above alluded to,—I mean the greater exposure to the exciting causes,—may have some influence in producing the result. Probably two-thirds of the patients are between 15 and 30; but it is also met with in infancy, and I have repeatedly seen it in children of five or six years of age;

while I have still oftener had patients with disease of the heart resulting from acute rheumatism, which had affected them in infancy. As we advance in life, the liability to the disease in the form of rheumatic fever diminishes; and it is comparatively rare after 50. There is, however, a considerable difference as to the frequency of different kinds of rheumatism at different periods of life; and the preceding remarks are to be regarded as most applicable to rheumatic fever, and least so to arthritic rheumatism, which more frequently attacks those beyond the middle period of life than the younger and more robust.

Rheumatism is a disease which has its chief, and some have even supposed its exclusive, seat in the fibrous textures; and there can be no doubt but that here, as in other cases, the organization of the part affected has great influence over the phenomena which result. The kind of tissue alluded to occupies a very large extent of surface in the human body: it nearly sheathes the limbs,—it constitutes ligaments which knit the joints together,—it forms sacs, which envelop the brain, the heart, and many of the glands,—it is gathered into the cords called tendons, and these are continuous with the periosteum or fibrous covering of the bones.

It seems to be a favourite conceit with anatomists, that certain textures in one part of the body are in some manner dependent for their formation on a similar texture in some other part; and in confor-

mity with this idea they have endeavoured to trace some common source whence the fibrous tissues derive their origin. Bichat placed their common centre in the periosteum, while Clarus has more recently assumed it to reside in the membrane investing the muscles. Extended as is the "centre" adopted by each of these authorities, great difficulty is found in bringing all the fibrous tissues within the circle: for example, it requires no inconsiderable faith to believe that the sclerotic coat of the eye is but a prolongation of the dura mater, or that the tunica albuginea is but an expansion of certain fibres reaching the testis in the sheathing of its vessels.

But as it has long been an orthodox belief, that inflammation spreads by continuity of surface, so it has been thought of importance to ascertain the route by which external diseases of inflammatory nature sometimes affect internal parts—as rheumatism, for example, does the heart. Now the pericardium has been supposed to maintain its connexion with the external parts either by means of the diaphragm, with which it is continuous at its apex, or through a prolongation of fascia covering the great vessels of the neck. This last idea has been especially dwelt upon by Dr. Godman, of Philadelphia*, who informs us, that "however singular it may appear that this arrangement should not have been discovered until this time, it is by no means as singular as that

* Anatomical Investigations: Philadelphia, 1824.

anatomists during so long a time should have remained contented to believe that a *serous* membrane like the pleura could form a strong *fibrous* membrane like the pericardium." From these expressions it is evident that the learned professor is perfectly "contented to believe" that the bag which contains the heart is dependent for its formation upon the fascia superficialis of the neck. It is curious to observe a very intelligent physician in this country (Dr. Brown, of Sunderland) quoting this supposed connexion as tending to explain the frequency of the affection of the pericardium in rheumatism; although it be notorious to every practitioner who has attended to this disease, that the throat, whence the disease is assumed to spread, is but rarely affected with it, while pericarditis is of very frequent occurrence simultaneously with rheumatism of distant parts, and where all idea of its having spread by continuity of surface is entirely out of the question.

But although this attempt to establish the existence of an unity among all the analogous membranes of the body be little more than a mere exercise of the fancy, it is very different when we come to investigate the peculiarities which mark those structures in particular parts, and which give character to their diseases.

Fibrous membranes are simple or compound. The former division includes *ligaments and fascia, aponeurosis, periosteum, and perichondrium*,—varieties

which differ in thickness and density, but possess the common properties of being fibrous, resistant, white, and more or less resplendent, insensible in their healthy state, having few vessels, and scarcely any nerves which can be demonstrated. Tendons and ligaments are made up of the same tissue, only modified by the arrangement of their fibres into bundles.

The compound fibrous membranes are those which are united with a different tissue—as the serous, examples of which are presented by the pericardium, the dura mater, and tunica albuginea, and which are therefore called *fibro-serous* membranes. In the nostrils and mouth, the fibrous and mucous tissues are compounded; and in the air-passages and the ear we find an union with cartilage. In the form of inflammation, however, to which I wish more particularly to direct attention, the textures most frequently affected are the fibrous and fibro-serous, the aponeurotic expansions which cover the muscles, the periosteum, and the fibrous covering of the nerves. But the disease undergoes important modifications, according as one or other of these textures happens to be its seat: and in fact rheumatism presents itself under such a variety of different forms, that it is difficult or impossible to give any definition which shall convey an idea of the disease at once comprehensive and correct.

The symptom most general and most dwelt upon is pain; but this may be absent when the case is

chronic, and the part at rest. Nay, rheumatic inflammation of the most acute nature may be present without the part affected being complained of, and this, too, though it be constantly in motion; for when the disease attacks the heart, it sometimes runs on to a fatal termination, without any pain having been referred to the chest. In one the disease is transient, in another persistent; in one it endures long, without giving rise to any organic change; in another it speedily produces such change of structure as proves rapidly fatal, or leads to protracted suffering, and more distant but not less certain destruction.

Without for the present taking into account the forms of rheumatism which affect the internal organs, and without including some of the rarer external varieties, we may enumerate the following as well marked, generally distinguishable from each other, and requiring considerable differences in their modes of treatment.

1. The patient may be attacked with pain in one or more joints, with tumefaction and redness, spreading to a greater or less extent over the surrounding parts. The swelling is here external to the joint, the hollows and protuberances about which are obscured, apparently by effusion into the cellular tissue. In this form the disease rapidly shifts its seat, and it is accompanied by acute inflammatory fever.

2. In another case the joints likewise are affected,

but in a different manner from the preceding. The pain is more limited, and the swelling evidently depends upon effusion into the capsule, which is seen to bulge at those points where the surrounding ligaments present least resistance. The bursæ of the tendons are also frequently implicated, and become distended by an increased effusion of their lubricating fluid. In this form of the disease there is less redness, and usually less violent fever, than in the preceding.

The great practical distinction between these two forms I believe to have been first made by Dr. Chambers: certainly others, who have not always remembered the original source of their information, were, like myself, first taught to make the distinction systematically, when following his practice at St. George's Hospital.

3. In a third form of rheumatism the pain is chiefly referred to parts intermediate between the joints, and seems to be seated in the muscles or their aponeurotic coverings. Here the pain, though it may be exquisite on the slightest movement, is not unfrequently entirely absent when the parts are quiescent: and here, too, there is often little or no constitutional disturbance.

4. In a fourth variety the disease affects the coverings of certain bones, especially those which are but slightly protected by integuments—such as the shin, the ulna, or the cranium: and under such circum-

stances there are often spots or patches more painful than the rest, tender to the touch, and elevated into nodes.

5. Lastly, the pain sometimes follows the course of particular nerves, more especially those of the lower extremities, and is occasionally confined to a narrow line, which the patient can trace with his finger. In such cases the power of moving the limb is occasionally affected to a greater or less extent.

Now although all these be usually classed together under the general appellation of rheumatism, they are affections so different in their phenomena and treatment, that it is impossible for them to be understood, either theoretically or practically, unless the distinctions alluded to be borne in mind; and without assuming that the textures specified are exclusively affected, or that the names are altogether free from objection, we shall proceed to speak of them as *Rheumatic Fever*, the *Arthritic* or *Capsular*, the *Chronic* or *Muscular*, the *Neuralgic* and the *Periosteal* forms of rheumatism.

CHAPTER II.

RHEUMATIC FEVER, OR ACUTE RHEUMATISM—SEAT OF THE PAIN—THE INFLAMMATION NOT CONFINED TO THE LIGAMENTS—GENERAL ABSENCE OF PERMANENT ORGANIC CHANGE IN THE PARTS INFLAMED—NATURE OF THE CONSTITUTIONAL DISTURBANCE—DIAGNOSIS BETWEEN THIS FORM OF RHEUMATISM AND GOUT.

Rheumatic fever is a disease exceedingly prevalent among the class of persons admitted into the hospitals of this metropolis; indeed so true is this, that I am satisfied all medical men connected with those institutions will bear me out in the assertion that, if we take into account the ulterior effects of acute rheumatism, it is not only one of the most prevalent, but one of the most fatal maladies, incident to our precarious climate. If this proposition should appear startling to any one, it can only be because he is not fully aware of the prodigious extent to which diseases of the heart, and dropsies, such as baffle all the efforts of our art, may be traced to an attack of acute rheumatism at some former period.

I know no cause which can be confidently pointed out as exciting this form of the disease, except

atmospheric vicissitudes operating upon a frame predisposed to receive their influence.

The pain in acute cases is scarcely ever wholly absent, but it varies prodigiously in degree. It is always excited by the slightest movement of the affected parts, as well as by pressure, and is likewise greatly aggravated at night. This has been attributed to increased warmth, and in the chronic form of the disease with apparent justice, as the pain is frequently excited by heat applied during the day; but in acute rheumatism this explanation is insufficient to account for the circumstance; for, in the first place, when a patient is confined to bed, I do not perceive how he is to be warmer at night than during the day (so far as external sources of heat are concerned): and again, it is stated by Mr. Malcolmson, in his recent account of rheumatism in India, that the natives suffer an aggravation of pain at night, although placed under circumstances which render any increase of temperature from without impossible, as their repose is taken in any corner where they can find space to lie down, and without going to bed at all. A simple and more rational explanation of the increase which the rheumatic symptoms undergo at night is to be found in the nocturnal exacerbation which is experienced in this, in common with most other febrile diseases.

Acute rheumatism is generally ushered in by feverishness and wandering pains. These, for the most

part, within a few hours, but occasionally not until the end of as many days, become localized. Sometimes one joint is especially attacked—sometimes several. Upon the whole, I think the most frequent order is for the foot and ankle, and then the knee, of one or both extremities, to be affected; next the hands and wrists, and after them, in point of frequency, the shoulders. The elbow is not so often the seat of attack as either the knees or shoulders; and the hip is implicated more rarely than any other of the large joints. It has been supposed that the relative frequency of attack depends upon the comparative degrees of exposure, and that those joints which are most covered suffer least. This explanation may serve to account for the hip-joint so often escaping, but it will not explain why the elbow should suffer less than the shoulder. Such, however, has been the fact in a very large majority of the cases of acute rheumatism which have fallen under my observation.

The pain is often very severe, and the constitutional disturbance considerable, before the parts swell, or even where no tumefaction occurs at all. But in acute cases some swelling is usually perceived about the joints most complained of, within twenty-four hours. This increases, and the parts become tense; the hollows about the joints are more or less obliterated; the skin is hot, red, and sometimes shining; occasionally there is considerable swelling without

redness ; occasionally there is a blush of redness, or redness in patches, with little swelling ; but generally the degree of tumefaction and redness bear a relation to each other. The part has very much the appearance of a phlegmonous inflammation, but one in which neither pointing nor fluctuation can be perceived.

One of the most remarkable characters of this inflammation is the rapidity with which it changes its seat in external parts. Generally in the course of a few days, and often within twenty-four hours or less, the pain diminishes, or wholly subsides, in the part first attacked, and simultaneously comes on in another ; which then proceeds through changes analogous to those above described, to become released from suffering in its turn, while the inflammation either goes back to its original seat, or, what is more common, invades some joint which had hitherto escaped. When the pain subsides the swelling does so too ; but this always takes place subsequently, although often with great rapidity ; so that within a few hours the part which was most tense may become perfectly flaccid, and have but a slight degree of soft œdematous fulness remaining. The skin in such cases becomes shrivelled and wrinkled, but after a time accommodates itself again to the subjacent parts, the cuticle very rarely desquamating, even where the swelling and cutaneous inflammation have appeared most intense.

It is astonishing how much the pain, as regards

the limbs, is confined, in the majority of cases, to the joints above mentioned, and their immediate neighbourhood. In a certain number, the loins, or the back of the neck, and the parts between the shoulders, become painful, but much less acutely; and here the rheumatism, even when most severe, is usually unaccompanied by appreciable redness or tumefaction.

In all the parts above described as subject to acute rheumatism, there are *ligaments;* and it is probable that they, and the other white dense fibrous tissues, are the primary seat of the disease. But it is clear that the inflammation is not absolutely confined to them; and indeed we see it in the skin, which is often so red, and with so much effusion beneath it, that it is by experience alone we become aware that suppuration is not impending. It is astonishing how little permanent change remains about the joint, even after repeated attacks; in which respect there is a great difference between this and the synovial, capsular, or arthritic form of rheumatism. Indeed, under ordinary circumstances, no injury whatever is done to the joint in rheumatic fever. Some degree of stiffness may remain for a time; but this seldom fails to wear off very speedily, when the parts to all appearance become perfectly restored. Perhaps about the back of the hand and dorsum of the foot, more frequently than elsewhere, a slight degree of thickening may remain; a certain portion of the lymph which was effused having there become organized.

Opportunities very rarely present themselves of examining the joints during the actual existence of acute rheumatism, because patients very seldom die during such attacks; I have, however, in two instances, been able to examine the state of the parts primarily affected, but without finding any very striking results. The external redness had subsided in both cases, and the swelling was very much diminished, so that nothing appeared but a certain portion of serum, or serum and lymph, in the subcutaneous cellular membrane. The fibrous tissues were perhaps rather thicker than natural, but without redness; the synovial membranes were without any apparent participation in the disease.

In a case of rheumatic fever which occurred to M. Chomel, of the Hôtel Dieu, Paris, the patient was rapidly cut off by pericarditis. As there had been severe affection of the joints, with much swelling, during life, M. Chomel examined them carefully after death, and describing the result he says—"l'examen de toutes les articulations n'a fait decouvrir dans aucune d'elles le plus leger vestige d'un travail inflammatoire."

The circumstances here are altogether considerably different from those attending the form of rheumatism which I shall next have to describe, and in which the internal structure of the joint is often conspicuously changed. In fact, it would appear that, in the form of the disease we are now considering,

although the inflammation frequently extends both to the integuments and to the deeper-seated structures, yet that it is a kind of inflammatory action but little prone to disorganization ; and I believe it is only in cases where the synovial membrane is affected that any permanent injury is done to the articulation, however active the rheumatism may be while it endures.

Besides the parts above enumerated, there are some others which are occasionally affected—probably in their fibrous textures—namely, the scalp, and the parietes of the chest and abdomen. I have placed them in the order of frequency in which they have fallen under my own observation, but without pretending to say it holds good universally. The affection of none of those parts, however, can be looked upon as conspicuously or peculiarly belonging to *acute* rheumatism, which, in a very large proportion of cases, is entirely confined to the extremities; or if any other part be implicated, it is usually the loins, back, or neck.

When the scalp is affected, it is sometimes tender at different points, so that the slightest pressure causes acute pain ; and in some instances there is slight but perceptible redness, and puffiness of the integuments. In one case which I treated a few years ago, the bridge of the nose became swollen, red, and tender, simultaneously with rheumatism elsewhere, and subsided when this was subdued.

Upon the whole, however, the affection of the scalp is much more common in certain other forms of the disease, which I shall have to consider hereafter.

The most common form in which rheumatism presents itself about the parietes of the chest, is as a "stitch," generally in the intercostal spaces, and low down on either side, though it may occur at any part of the thorax. Rheumatism in this situation interferes with respiration, the act of raising the ribs causing very acute pain. This kind of rheumatism may therefore be mistaken for pleurisy; but is for the most part readily distinguished by the external tenderness. The least touch is acutely felt in rheumatism, whereas, to increase the pain by pressure in pleurisy, it must be made between the ribs, and pretty firmly. It is also to be distinguished by the partial or complete freedom from suffering when the ribs are fixed, and respiration is carried on by means of the diaphragm—by the circumstance of cough being absent, or at least not necessarily present, in rheumatism, whereas in pleurisy it is rarely wanting —by the degree of constitutional disturbance being much less than in pleurisy, if the rheumatism be confined to the parietes of the chest, while its appearance elsewhere, if it be not so confined, renders any other diagnostic mark almost superfluous.

I have sometimes supposed that the diaphragm was the seat of rheumatism, from the manner in which the pain darted through from the sternum and edges

of the ribs to the back and loins; nor is there any difficulty in believing that this may be the case. Such occurrence, however, is evidently rare, and is rather matter of curiosity than of practical importance, because even if we were pretty well assured of its presence, we could not prudently have recourse to any other treatment than that adapted to inflammation in general.

Rheumatism of the abdominal muscles in an acute form is principally met with where some peculiar circumstance has led to their unusual exposure to cold. Thus I have seen several instances in which a person riding or driving, with a cold wind, or wind and rain, beating in his face, has suddenly been seized with acute pain across the abdomen; generally, though not always, with rheumatism elsewhere. This pain is greatly aggravated when the abdomen is protruded in inspiration, or by attempting to bring the body into the completely erect posture, and is almost or entirely prevented by tying any thing rather lightly round the body so as to limit the action of the muscles. It can scarcely however be looked upon as one of the forms of rheumatic fever,—at least, I have never seen it attended either with redness or tumefaction, or with constitutional disturbance, unless there was also rheumatism elsewhere.

I think I have several times seen rheumatism of the tunica albuginea testis. Persons subject to rheumatism have complained of acute pain in one

testicle, coming on suddenly, accompanied by increased heat, and by great tenderness to the touch, but without tumefaction; the symptoms shifting from one testis to the other, and at last disappearing as suddenly as they had come on—just in the manner we see rheumatism change from one joint to another.

The constitutional disturbance which attends acute rheumatism is of a well-marked and striking character. When any of the dense ligamentous structures are in a state of active inflammation, the general system sympathizes largely with the suffering part; in fact, it would appear that the less vascular and more insensible the texture, the more ardent is the fever which is lighted up when it does become inflamed. So, in this form of rheumatism, we meet with nearly as violent specimens of reaction as we are ever called upon to witness. The chilliness or shivering with which this, in common with other acute fevers, is ushered in, having passed away, becomes speedily followed by great heat of skin, with copious but partial perspirations, which are almost invariably acid, rapidly reddening litmus paper, and often exceedingly sour to the smell. The pulse increases to 90, 100, or 110, in frequency, and has a peculiar character. In books it is usually stated, rather emphatically, not to be hard; but I do not think this quite correct. The pulse is large, full, and active; not so hard as the small, concentrated, incompressible pulse of serous inflammation, but often quite as hard

as a pulse of such size can well be supposed to become. The heat of skin and activity of the pulse bear a relation to each other, as might be expected; and sometimes both are less exalted than I have above supposed, the heat being moderate, and the pulse large, but soft. Such cases usually yield to treatment more speedily than the others.

The tongue, where the fever runs high, becomes deeply loaded, white, and clammy, or even yellowish and dry. No acute disease, except continued fever, exhibits so thick a fur, and the coating of the tongue is even more uniformly present in acute rheumatism than in the common fevers of this country. The appetite is impaired, but generally not so absolutely annihilated as in fevers proper; there is also much less urgency of thirst. The bowels are sluggish and loaded, the evacuations usually dark and offensive. The urine scanty, generally much, and sometimes prodigiously, loaded with the lithates.

A remarkable difference between this and other forms of fever approaching to it in violence, is the comparative infrequency of what are called nervous symptoms. Delirium is a very rare occurrence; indeed I have never seen it, so long as the rheumatic inflammation has been limited to the external parts, and in many very acute cases there is no headache from first to last.

How long a case of acute rheumatism of medium severity might endure, if left to itself, I am unable to

say; but, with the common methods of treatment, probably five or six weeks may be about the average duration of rheumatic fever. Sir Charles Scudamore says, that "in a case *of which the issue is favourable*, the fever and pains are brought to a close at the end of the third week, and in slight attacks at an earlier period; but when the course of the disease is untoward, a period of two months scarcely serves to exhaust its power in producing even acute symptoms." This, indeed, is, I believe, in accordance with the generally received opinion, which has led to rheumatic fever being looked upon as in some sort like the eruptive fevers; having a more or less definite course to run, and through which it was the business of the practitioner to endeavour to guide his patient safely, rather than to arrest the disease by any very active interference. So far as I am able to judge, this opinion is not well founded; and I am inclined to believe that a more correct pathology would induce us rather to class acute rheumatism among those diseases which may often be speedily extinguished, if met at the onset by appropriate means.

When the disease is at its height, it is difficult to imagine a more complete specimen of helpless suffering than the patient presents: he lies motionless, as if cased in mail—deprived of that temporary relief which change of posture often affords in ordinary fever. Absolute rest, indeed, seems to mitigate the

suffering to a certain extent; the slightest movement of the limbs by a voluntary effort, and even the passive motion effected by an attendant, exciting acute pain. But it is only during the day that quiescence brings this partial respite, for towards night the pain becomes aggravated, and continues so till morning. The fever observes corresponding changes, but not, I think, to the same extent as the pain. The exacerbation both of the local and general symptoms appears to me, however, as I have stated, to be only in accordance with that general law of diurnal revolution which we meet with in so many diseases, and not to be dependent on the accidental cause assigned for it in the increased warmth of bed.

As the disease is overcome by treatment, or the spontaneous changes in the system, all the symptoms progressively, and sometimes very suddenly, abate —the pain first, and then the fever, or rather, perhaps, they subside simultaneously; but I seldom can observe any thing *critical*, in the ordinary acceptation of that term. It is true that the perspiration loses its sourness, and the urine drops its sediment; but when this occurs the pain and swelling of the joints will be found already to have subsided, so that we need not look for other proofs of the disease being already on the decline.

Persons who suffer from rheumatic fever are subject to relapse, especially from stimulating treatment or premature exposure; but with these exceptions

the recovery is generally complete where the heart has escaped injury: and so far as my experience goes, such individual is scarcely, if at all, more liable than any other to have the disease in what is peculiarly regarded as its *chronic* form. There is, however, a subdued or sub-acute kind of rheumatism which sometimes follows rheumatic fever, and which, in reality, is this form of the disease in a mitigated degree. There is pain about the joints which have previously suffered more severely, and which, on but slight exposure to cold, becomes attended with swelling and some degree of fever. In this it differs from the chronic form, which is situated more about the muscles intermediate between the joints, unattended with any perceptible swelling, and, unless during a severe nocturnal exacerbation, unaccompanied by fever.

I know of no disease with which the present can well be confounded, except an attack of gout, or of the acute capsular form of rheumatism.

Besides the assistance which we derive from the history of former attacks, the distinction between acute rheumatism and gout may be drawn either from the general or local symptoms; and when these are viewed collectively there cannot, under ordinary circumstances, be the slightest difficulty in forming our diagnosis. Rheumatism so acute as to incur the risk of being confounded with gout, is almost invariably the obvious result of exposure to cold, and may attack a person pre-

viously in perfect health. Gout rarely makes its invasion without premonitory symptoms; as a general rule, it is preceded and accompanied by derangement of stomach, and accordingly, in at least nineteen cases out of twenty, more or less loss of appetite, nausea, acidity, and flatulence, usher in the paroxysm. In rheumatism, as we have seen, the bowels are generally torpid, and the evacuations unhealthy; but the stomach does not suffer more than in any other form of inflammatory fever. The fever in gout has a much more marked remission, and bears a more obvious relation to the intensity of the local affection. The period of the first invasion in gout is almost invariably at night; whereas rheumatism may come on at any time. Gout is locally much more partial to particular joints—as, in the first instance, to that of the great toe; and it seldom affects many joints at once. The swelling is not so diffused as in the acute form of rheumatism, but may be perceived, as it were, to proceed from within the joint, the synovial membrane of which is distended; and when it spreads to the integuments, which it does very rapidly, they assume a deep fiery red, with shining tenseness, and pit on pressure, while, as the fit subsides, the skin itches, and the cuticle desquamates: now these are phenomena which scarcely ever occur in rheumatism, however acute.

The character of the suffering, too, is different; but this mark has the disadvantage of being dependent on the description of the patient. In gout the pain

is of a gnawing, throbbing, and burning kind, with a peculiar sense of weight. In rheumatism it is acute and lancinating on the slightest motion, and no doubt sufficiently difficult to bear, but, unless when the patient moves, it does not equal the torture of acute gout. In rheumatic fever, much of the habitual distress, when the patient is at rest, depends upon the pain being so extensive; in gout it rather depends upon its being so intense.

In rheumatism, fever often precedes the local inflammation: in gout, the symptoms which precede the attack are rather of the nervous kind, and the fever follows, or at least is only contemporaneous with, the articular affection. In rheumatism, the first attack is usually the most severe, as regards the external parts, and the subsequent invasions frequently diminish; at least there is no tendency on their part to increase in severity. In gout, just the reverse is the case; and that often in a marked degree.

Lastly, acute rheumatism is a disease of early life, a very large majority of those affected being under thirty*; gout, on the other hand, is a malady almost confined to a more advanced period of life, but few having it until after forty.

The diagnosis between rheumatic fever and acute capsular rheumatism, will be best considered in speaking of the latter.

* See the Tables in a subsequent part of the present volume.

CHAPTER III.

ANALOGY BETWEEN RHEUMATISM AND OTHER INFLAMMATIONS —TREATMENT OF RHEUMATIC FEVER—BLEEDING, PURGING, AND OPIUM, THE CHIEF REMEDIES—ESTIMATE OF VARIOUS OTHERS.

I DO not think that there is any disease presenting such ample opportunities for observing all its phenomena, with respect to which the treatment recommended by different authorities is so various and contradictory, as in the one under consideration. Much of this discrepancy, no doubt, depends upon the term rheumatism being applied to forms and conditions of disease differing widely from each other; but this will not serve to explain the anomaly under all circumstances, because in the very same condition means as opposite in their nature as can well be imagined have been recommended, and sometimes lauded to the very echo by their respective patrons. All that can be expected of any one under such circumstances, is to relate faithfully what he has himself met with; and this is the plan I have laid down for myself; not intentionally or knowingly either over-rating or depreciating the value of any

remedial means, nor hesitating to express my dissent from received authorities, where these are contradicted by actual observation.

Now in the treatment of that form of rheumatism which has been above described, in which it assumes all the characters of an acute disease, the conviction has gradually been forced upon me, that it has been too much separated from other inflammations. I presume, indeed, that most practitioners of the present day are in the habit of abstracting blood in cases of acute rheumatism; but so far as my observation extends, the depletion is adopted on principles very different from those which are acknowledged with regard to other inflammatory diseases. I mean, that the blood-letting is either looked upon as only favouring the operation of certain remedies which are to follow, or at all events as a means which may moderate, but cannot be expected to extinguish, the disease; to accomplish which requires certain routine prescriptions not usually adopted in other inflammatory affections.

Now the more I see of rheumatism in its *acute* form, the more I am disposed to think that at its onset it is amenable to the same laws as other inflammations. When an attempt is made to enforce this argument, the most common answer is, that rheumatism is a "specific disease," and by this all its peculiarities as to pathology and treatment are supposed to be accounted for. But I suspect that this expression

is often used without any very "specific" meaning. If it be intended to intimate that rheumatism is not identical in its phenomena with various other inflammations, it is unquestionably very true; but the same observation holds good equally with regard to the inflammation of numerous other textures, as well as of those implicated in rheumatism. Pleuritis is manifested by different general symptoms and different organic changes from bronchitis, and pulmonitis is in those respects different from both. Inflammation of the skin differs from that of cellular tissue, —that of veins from both. Why, then, should we think it necessary in the case of rheumatism to seek for any other causes to explain its peculiarities different from those which we admit as accounting for the analogous peculiarities observable in the inflammations above enumerated? I say that the difference between the inflammation of the fibrous textures in acute rheumatism, and that of any other texture which may be assumed as a standard of comparison, is not greater than between such standard and various other inflammations which might be named. Again, if by "specific" be meant that there is any thing in the exciting cause of the disease different from that of other inflammations, there is obviously no ground for the assumption. Atmospheric vicissitudes give rise to rheumatism, or pleurisy, or ophthalmia, and are not more unequivocally the origin of one of those than of another. With syphilis, and other really

specific inflammations, the case is very different. Acute rheumatism at its onset, so far as I am able to judge, does not differ so much from other inflammations as to warrant the great difference in the treatment usually adopted; and this, I think, has led to formidable evils, both by unnecessarily protracting the cases, and by suffering organic changes in the heart and its investments to proceed unchecked. But I would be understood as speaking at present of the early stage alone of acute rheumatism, because if this has been allowed to pass, various changes in the pathological condition supervene, requiring other and often very dissimilar modes of treatment.

Many assume not only that free blood-letting is injurious, but that acute rheumatism can never be cut short by it. Now I suspect that of those who give a tolerably confident opinion upon this point, very few have tried the method they condemn. In the winter of 1834, a patient labouring under acute rheumatism was brought into St. George's Hospital; he presented great tumefaction and redness of the left hand and wrist of only thirty-six hours' duration. I had been in the habit of bleeding in cases such as this to the extent of from twelve to sixteen ounces, and following up the depletion with calomel and opium; but a very intelligent young physician then attending the hospital having stated that he had seen his father often cure acute rheumatism very

rapidly by copious venesection, without any thing else, I ordered the patient above alluded to to be largely bled (to thirty ounces), and no medicine to be given internally. In this case the disease was literally extinguished, for the patient was at once entirely relieved of his pain, and the swelling rapidly disappeared. Now it is only in that form and stage of the disease, of which the case alluded to may be regarded as a type, that blood-letting exercises such remarkable influence, and it is in such cases only that I urge the expediency of bleeding and purging, as in any other acute inflammation, and with the same object, namely, that of at once cutting short the disease. In a certain number of cases we shall succeed in the accomplishment of our purpose just as completely as in any other form of inflammation; and even when we fail to arrest the attack entirely, we mitigate its severity, and render it more amenable to other remedies.

To come more to particulars, I should say, that in well marked cases of rheumatic fever, within the first week of their onset, and in individuals of the average degree of robustness, from twelve to twenty ounces of blood may be abstracted with advantage, several successive times, in the course of five or six days. In judging of the propriety of repeating the venesection, the three points chiefly requiring to be attended to are

the state of the blood, the character of the pulse, and the effect produced upon the rheumatic pains.

The blood, as every one knows, is generally very much buffed in rheumatism, but the presence of this appearance is not sufficient to warrant, *per se*, the repetition of the depletion. I think, however, the converse holds good, and that a loose coagulum, without the buff, is a sufficient reason in rheumatism for avoiding venesection, even although the attack may otherwise be acute.

The pulse sometimes, though very rarely, loses its peculiar bounding character after the first abstraction of blood; and where this happens, I have not found further depletion of service.

As regards the pains, their cessation, or very great diminution, alone warrant us in declining to repeat the blood-letting; the general order of events being, that an abatement of suffering follows each recourse to the lancet. But whatever the aspect of the case might be, if no relief whatever resulted from bleeding practised once, or at most two several times, (an event which I have scarcely ever witnessed, except where some of the circumstances above mentioned were present, and thus gave early notice of the peculiarity,) I should then substitute other remedies, and avoid pushing the depletion further.

Of the other remedies alluded to, I think the most important is purging. The bowels are generally loaded with unhealthy secretions, and the most

manifest relief is derived from their full, and free, and frequent evacuation. For this purpose nothing answers better than calomel, in doses of from three to five grains, administered at night, and followed by senna and salts next morning. This discipline ought generally to be repeated on several successive days; indeed, throughout the whole course of a case of acute rheumatism, the due evacuation of the bowels ought to be an indication never lost sight of; and in many cases where the attack is comparatively mild, this is the only form of depletion required.

By the joint use of the expedients above mentioned—namely, bleeding and purging—acute rheumatism in a certain number of cases may be cut short at once; that is, within two, three, or four days; and I have more than once seen it completely and permanently removed within twenty-four hours, even although ushered in with great severity, and attended by much swelling and redness of one or more joints. If it be objected that the proportion of such very rapid recoveries is small, I readily admit this; but I would ask in return, by what other means a like number of cures within a similar period can be effected. I have never seen it accomplished by any other of the numerous methods generally adopted. I find from my notes—as will be seen by the tables in the concluding chapter—that half the cases of rheumatic fever which I have treated at St. George's Hospital have been discharged,

cured, within three weeks; and as it is the custom not to send out patients who have had acute rheumatism as soon as they cease to complain of pain, lest they should suffer a relapse, it is, I believe, a faithful representation of the facts to assert, that of those admitted at the onset of the disease, the great majority have been entirely well within a fortnight, and a very large proportion have been perfectly free from complaint within a week.

The remedy which in acute rheumatism stands next in importance to bleeding and purging, is opium. If by the means already mentioned the pain has not been very much mitigated within forty-eight hours, or I should rather say if any pain then remain, opium ought to be had recourse to, in doses sufficient to give relief. The quantity required for this purpose varies very much in different cases, and is always greater where previous depletion has either been neglected, or imperfectly practised. On the average, two grains in the course of the twenty-four hours are sufficient; and I have been led to think that the solid answer better than the liquid preparations. How much opium may be taken with impunity, or even with advantage, so long as its usual effects are counteracted by the presence of pain, I am not prepared to say, but I have often given four, and sometimes six, grains in twenty-four hours; nay, in one case so much as eight

grains were taken by a patient of mine within eighteen hours. This arose from the attendant mistaking the directions, but the patient suffered no inconvenience from the opium, which it is proper to mention was combined with not less than half a drachm of calomel.

I believe the best mode of determining the dose is to watch its effects, beginning in an acute case with one grain at bed-time, and repeating it at such intervals, and in such quantity, as to keep the pain under control. Dr. Cazenave, of Pau, some years ago recommended that rheumatism should be treated by opium, in doses of a grain every hour; and more recently, Dr. Corrigan, of Dublin, has used the same remedy very freely in acute rheumatism.*

At one time I was in the habit of always giving calomel with the opium, but I repeatedly observed that the rheumatism continued, although the mouth was affected, while it speedily subsided on continuing the narcotic and purgatives without the mercurial; and I am inclined to believe that calomel here, as in other inflammations, is chiefly available in counteracting the tendency to organic change which results from the effusion of lymph. But in cases of acute rheumatism, where the local affection is limited to the external parts, there is little to be apprehended

* See a valuable paper in a recent number of the Dublin Journal of Medical Science.

on this score, and the administration of calomel is chiefly useful when adopted as an energetic auxiliary to the purgatives. If there be a participation of the heart in the disease, or even the suspicion of such, mercury must immediately be administered, and persevered in until such symptoms are entirely subdued: but this is a part of the subject I shall have occasion to allude to more particularly in a future chapter.

Numerous other expedients have been recommended in the treatment of rheumatic fever; of these, perhaps, sudorifics of a stimulating kind are most generally employed. In other febrile and inflammatory diseases, if we administer diaphoretics, they are usually of the nauseating kind, such as antimonials; and though these be occasionally exhibited in rheumatism, yet much more generally a preference is given to Dover's powder, guaiacum, and analogous medicines. My own experience, however, induces me to regard all such remedies as much less useful in *acute* rheumatism than those I have already spoken of.

In the great majority of cases of rheumatic fever, the patient already sweats very copiously, but without deriving any relief from it; nor have I been able to discover (though I have very frequently seen it tried) that artificial perspiration has in general any favourable result. Of sudorifics, the mistura guaiaci is that which I have oftenest seen administered,

and apparently with the most relief. But this mixture, when given in full doses, almost always purges, and the patients whose bowels were thus acted upon have been those in whom the remedy appeared of most service. I have repeatedly seen cases of acute rheumatism, during which the mistura guaiaci had been given for several days, without any mitigation of the symptoms. I have then had such patients bled and purged, and within twenty-four hours they have been comparatively well. But, on the other hand, it is equally true, that I have seen the mistura guaiaci succeed where the other remedies had failed. This has occurred chiefly, if not exclusively, in persons of broken-down constitution, who could not bear bleeding, and has almost always been confined to what might be called subacute cases. Nearly the same remarks may be made with respect to colchicum in acute rheumatism; if it purges it does good, though I do not think even then that it is more efficient than many other purgatives; but if it does not act on the bowels, little or no benefit follows its use. It is to be observed, however, that I now refer to acute rheumatism or rheumatic fever alone; in another form of the disease the results are very different.

Cinchona was formerly esteemed a valuable remedy in acute rheumatism, and although the opinion was founded on no mean authority, I am under the necessity of expressing my dissent in the strongest

terms. The administration of this medicine is contrary to all analogy, and so far as I have seen is equally forbidden by experience. We must suppose that they who recommend it have seen patients recover under its use; but in my limited experience, cinchona, even if administered at a period of the disease when we might more reasonably expect it to be of service, has a direct tendency to aggravate the symptoms. I have seen cinchona repeatedly given, on the subsidence of an attack of acute rheumatism, with a view of hastening the patient's recovery, but in such cases the effect was almost invariably that of producing a fresh accession of the disease, so as to render an immediate abandonment of the bark imperatively necessary. Here, as with respect to the colchicum, I must guard myself by observing that I allude to acute rheumatism—a form of the disease, however, in which the cinchona has been recommended as little short of a specific. In old cases, occurring in cachectic and broken-down constitutions, cinchona is sometimes of essential service; but this is a very different form of disease from that which we are at present considering.

I know no local remedies which afford any relief in acute rheumatism except the application of leeches. These, however, ought not to be had recourse to unless under particular circumstances; indeed the only cases in which I would recommend them are those wherein the pain remains very severe, and fixed in

one, or perhaps two joints, after general depletions have already been carried as far as is deemed advisable. The suffering of the patient is generally relieved very much by leeching under such circumstances; but it is only to be regarded as a palliative, and in the great majority of cases is not called for.

If any chronic thickening should remain about the parts which have been principally affected, (which, as I have stated, sometimes occurs about the dorsum of the foot and back of the hand,) it is best removed by means of the iodide of potassium—of which, as more particularly applicable to a different form of the disease, I shall have occasion to speak more fully hereafter.

The diet of the patient, I need scarcely say, ought throughout to be strictly antiphlogistic.

CHAPTER IV.

AN INFLAMMATORY AFFECTION OF THE HEART AND ITS MEMBRANES THE MOST COMMON COMPLICATION OF RHEUMATIC FEVER; THIS LONG KNOWN IN ENGLAND, THOUGH BUT LATELY IN FRANCE — M. BOUILLAUD'S VIEWS — CLASS OF CASES IN WHICH PERICARDITIS IS MOST FREQUENT; THIS OCCURRENCE ERRONEOUSLY ATTRIBUTED TO BLOOD-LETTING.

By far the most common, as well as the most important, complication of rheumatic fever, is an affection of the heart. Cases of this nature were recorded half a century ago by Dr. Pitcairn, since which time many English physicians have written upon the subject; so that the fact of the heart being occasionally subject to inflammation during the existence of acute rheumatism has long been an established pathological principle in this country. Under these circumstances, it is rather startling to find M. Bouillaud, in 1836, not, indeed, claiming as a discovery of his own, the fact of pericarditis sometimes occurring in rheumatism, but maintaining that the doctrine of such complication being any thing more than acci-

dental, rests upon the authority of his researches, and which, according to his own account, had only been fully made out during the three previous years.

Ever ready, as some among us are, to attribute to our neighbours in France the superiority in pathological anatomy, it is not a little remarkable to meet with an illustration so palpable as this of the neglect of that which alone can render such investigations practically useful; I mean the application of the knowledge acquired from studying the changes of structure in the dead to the explanation of disease while yet progressive in the living. The observations of M. Bouillaud—more especially his claim to originality—clearly show that, among his countrymen, the closeness of the connexion between rheumatism and carditis was not known; and accordingly, when we turn to the best French authorities, we find that the subject is either altogether omitted, or but slightly alluded to. Corvisart, indeed, says he is inclined to regard gouty and rheumatic affections as frequently producing adhesion of the pericardium: but, speaking of the causes of pericarditis, he does not even allude to the coincidence of this disease with rheumatism. The same want of any distinct announcement of the connexion between rheumatism and pericarditis characterizes the volumes of Laennec, and the more recent works of Chomel. But what is still more remarkable, Louis, in his Memoir on Pericarditis, in which the phenomena of the disease, as regards its

local and general symptoms, are excellently detailed, says nothing of its connexion with rheumatism. Of all the French writers previously to M. Bouillaud, Andral is the one who makes the most distinct reference to a connexion between acute rheumatism and certain affections of the heart. He relates (in his *Clinique Médicale,* tom. i. 2d edit.) a case of pericarditis which followed an attack of rheumatism, speaking of it as a *metastasis;* but one which he seems to have thought quite as likely to attack the pleura or the lungs as the heart; and he adds that the lesion of function in such cases appears to be greater than the change of structure: expressions which show how little familiar he was with the phenomena in question.

But if M. Bouillaud be not entitled to the merit of priority in establishing the important relation which subsists between acute rheumatism and inflammation of the membranes of the heart, he deserves credit for the zeal and activity with which he has investigated the subject. Since his attention was directed to the inquiry, he has met with so many instances of rheumatism of the heart, that he estimates them at not less than one-half of the whole number in which the disease has assumed the character of rheumatic fever. Indeed, he goes further, and assumes the coincidence of the heart affection with acute rheumatism to be the rule, and its absence the exception. Without carrying our opinion quite so far as this, no one who

has been much in any of our public hospitals can fail to have been struck with the very large proportion which the cases of diseased heart bear to the mass of those admitted; and if he has carried his inquiry but a single step further, he must also have found that a great number of those labouring under such affections have had rheumatic fever at some previous period, although it often happens that they themselves have not suspected any connexion between the primary acute attack and the secondary and now chronic disease.

When attention was first directed to the affection of the heart in rheumatism, it was very generally supposed, and is still frequently assumed, that this depends upon a metastasis, or change of seat, on the part of the rheumatic inflammation: but more extended observation has not confirmed this view, and I have myself so frequently seen cases in which the supervention of carditis was attended by no mitigation of the external rheumatism, that it seems to me quite illogical to apply the term metastasis to this condition. Again, I have known several instances of individuals who had been exposed to cold, and became affected with pericarditis, having had no pain of the limbs previously, but who have had unequivocal rheumatism in some of the external parts within from twenty-four to forty-eight hours after the heart had become affected. The result of my experience, indeed, would lead me to infer, that if an

individual has any given set of joints affected with acute rheumatism, such joints are more likely to be relieved if the disease attacks other external parts than if it fix upon the heart. It is probably because we often see that when a second set of parts about the limbs become implicated, those which were first attacked improve, that so many writers have assumed the same to occur with respect to the heart. I have no hesitation, however, in expressing my conviction that the pericarditis supervening during rheumatic fever may more correctly be regarded as an extension of the disease, than as a true metastasis.

Another important question relates to the class of cases in which this complication presents itself. Dr. Latham says, "it is incident to all the degrees, and all the stages, and all the forms of acute rheumatism." I fear it will not add to the credibility of my opinions that they differ from so esteemed an authority. I acknowledge, indeed, that it is incident to all degrees of rheumatism; but when it is added, that "it is not more to be looked for when the disease is severe than when it is mild," I am under the necessity of withholding my assent. According to my experience, the heart affection is much more frequent in severe than mild cases of rheumatism. I do not mean to say that I have not seen pericarditis come on where the external rheumatism has been mild; but merely this—that such examples are rare, compared to those in which the converse holds good.

Neither do I think that it is equally incident "to all forms of acute rheumatism." Indeed, on referring to my notes, I do not find that any of the cases of heart affection which I have witnessed (save two) have resulted except from one particular form—namely, the general or diffuse kind, in which the fibrous structures are chiefly implicated. It is but right to remark, however, that when Dr. Latham speaks of the heart affection as liable to supervene upon "all the forms of acute rheumatism," he may possibly limit the epithet "*acute*" (as I have done in these pages) to that form in which the fibrous textures are the seat of the inflammation, or, in other words, to rheumatic fever.

As some persons labouring under this disease have, while others escape, an affection of the heart, it becomes a very important question to ascertain the cause of this difference. I am not aware that any circumstance has been specified as tending to produce the pericarditis in such cases, except blood-letting, which has been supposed to increase the risk of this occurrence. So far as my observation extends, this opinion rests on insufficient grounds. I have during some years often bled patients freely and repeatedly in the course of the first week in rheumatism, without as yet having met with one instance in which inflammation of the heart has been induced by it; and I have seen many cases of rheumatic heart in which the patients had never been bled at all. At

Edinburgh, some years ago, blood-letting was practised to a great extent in the clinical wards of the Royal Infirmary; and Dr. Watson, who witnessed the treatment, says, in reference to it, "I do not recollect that affections of the heart were much noticed in those cases." Again, blood-letting has scarcely been employed in France in the treatment of rheumatism, and yet, as we have seen above, M. Bouillaud, alluding to the frequency of the complication of pericarditis, regards its presence as the rule, and its absence as the exception—a view of the subject which clearly proves how common it is in Paris. And this inference, be it observed, he draws, not from those who had been bled, (which his own patients generally were very freely,) but from those treated in the ordinary way.

I cannot help thinking that the idea originated in an erroneous theory, and has since been perpetuated by that strong tendency to copy opinions and practice which is so remarkable in the history of our art. Patients having severe fibrous rheumatism were bled; some of them afterwards became affected with pericarditis: the fact of this being so frequent an accompaniment of rheumatic fever was not known, and some extraordinary cause being thought necessary to account for the phenomenon, the blame was charged upon the depletion. But again, the pericarditis not being recognised as one in the train of phenomena in acute rheumatism, was supposed to be a transference of

the disease from the external parts to an internal organ —a metastasis, in short; and then, by a natural train of reasoning, those causes which experience had shown to lead to other kinds of metastasis were assumed to operate similarly here. I believe that this view of the pathology of the affection of the heart which takes place in rheumatism will be found to pervade the writings of all those who hold that blood-letting in rheumatic fever tends to produce pericarditis. Thus Dr. Alison, in his History of Physic, published in the fourth volume of the Cyclopædia of Practical Medicine, says he has no difficulty "in stating his conviction, that large and repeated bleedings in the beginning of rheumatism, increase the risk of this *metastasis*." No ground, however, is assigned for this conviction; and it would clearly require, in order to prove its accuracy, a great number of comparative trials, made in cases as much alike as possible. Again, I have stated above, that, so far as my experience goes, the complication of the heart affection is more apt to occur in severe than in slighter cases; but it is in such severe cases that we most usually abstract blood; and then those who enter upon the subject with preconceived opinions, almost unconsciously dwell upon the depletion, and forget the acuteness of the disease which called for it, when they are seeking out the causes of pericarditis.

If there be one class of patients more than another in whom blood-letting is comparatively seldom

adopted in acute rheumatism, it is children; and what is the fact with regard to *their* liability to heart affections? Are they proportionally more or less obnoxious to this disease? I have no hesitation in affirming, that I have met with more cases, proportionally, in which rheumatic fever had led to disease of the heart, in children than in adults. This remark is also in keeping with the experience of Dr. Watson, who says, that although blood-letting does not cause any predisposition to the cardiac affection, yet youth certainly does; and further, that the younger the child is, the more likely is rheumatic pericarditis to supervene. Now, agreeing as I do with Dr. Watson in the statement of the fact, I venture to ask, with regard to its cause, whether this may not consist in that, the younger the patient, the less likely is the necessary depletion to have been had recourse to?

Lastly, as regards this part of the question, let us observe the treatment. A patient has rheumatism of the limbs, and it is assumed, that to bleed him increases the risk of his heart becoming affected. But if the heart does become implicated, although the rheumatism still remains in the limbs, we are then told to bleed (moderately it may be, but still to bleed), by the very same parties who hold that to bleed in rheumatism increases the risk of the heart becoming affected? But if bleeding originally transferred a portion of the rheumatic action to the heart, surely

bleeding further must be attended with the risk of transmitting any portion of the disease which yet remains in the limbs, to that organ whose liability to it was first begotten by the depletion.

That blood-letting carried too far, in rheumatism, is productive of certain other injurious consequences, I feel persuaded; but nothing I have seen would lead me to enumerate pericarditis among those evils: and this, I may add, is an opinion forced upon me in the wards of St. George's Hospital, in opposition to the opinions I had previously derived from reading.

CHAPTER V.

LOCAL SYMPTOMS OF PERICARDITIS — AUSCULTATION AND PERCUSSION — GENERAL SYMPTOMS — MANIACAL DELIRIUM SOMETIMES INDICATIVE OF RHEUMATIC INFLAMMATION OF THE HEART — CASES IN ILLUSTRATION.

The symptoms which mark an attack of rheumatic inflammation of the heart may be divided into those immediately connected with the organ itself, and those manifested by other parts; or, in other words, into the local and general phenomena.

Of the local symptoms, that most commonly complained of is pain; yet there is perhaps none to which it would be more fallacious to trust, because it is sometimes entirely absent even in the most formidable cases. When present, the nature of the pain differs at different times. In one it is an acute stitch, aggravated by inspiration, and resembling that of pleurisy; in another it is a dull, heavy, burning, uneasiness; but more generally it is of a character intermediate between these—that is to say, the pain is rather acute, but neither so sharp, nor so much aggravated by inspiration, as it is in pleuritis. The

pain is distinctly, and sometimes very severely, aggravated by pressure; and may even be thus excited when not otherwise present. To ascertain this, the fingers must be applied between the ribs, over the region of the heart; or the hand may be applied to the epigastrium, and pressure made upwards, inclining to the left. It will frequently be found that pain is experienced when either of these expedients is had recourse to, even although no uneasiness in the region of the heart has been previously complained of; or at least none of a more palpable nature than oppression and discomfort. Such examinations, it is to be observed, require to be made with a certain degree of caution, otherwise unnecessary pain, if not more important injury, may be inflicted.

In recent and acute cases the pain is generally limited to the region of the inflamed part; but in those who have suffered from similar attacks before, and in whom the heart has become organically diseased, the pain is apt to pervade the left side of the chest generally, and even to extend to the scapula, shoulder, or arm.

The extent to which the heart's action is altered, as indicated by the presence of palpitation, or of any peculiar affection of the pulse, is much less than we should *à priori* have anticipated, or than it is often represented to be, in books. Limiting, for the present, the term palpitation to that tumultuous action of the

heart which directs the patient's attention to it, and induces him to make it the subject of complaint, I am quite satisfied that it is frequently entirely absent; while, with respect to the pulse, it not only has nothing which can be regarded as pathognomonic, but I should even say that it has no character which is calculated to afford us any material assistance in the diagnosis. Generally, indeed, it is increased in frequency (beating from 100 to 120,) and at the onset is also, I think, usually more jerking than natural; but this latter character often very speedily subsides, and then, although generally retaining its augmented frequency, it may become weak, unequal, or intermitting—all which phenomena, it is well known, may attend other diseases of the chest, more especially those attended with effusion.

But although, as I have said, the heart's action is not so often changed in rheumatic carditis as to excite a form of palpitation, of which the patient complains—as he does in various other affections of that organ—yet I believe there is no instance in the whole range of disease in which so great assistance is derived by an educated ear from listening to its sounds. Now the anormal sounds met with in rheumatism of the heart are chiefly two; one of which conveys the idea of rubbing or friction, and the other that of blowing or whizzing. The former of these seems to depend upon increased friction between the surfaces of the pericardium; the latter, upon increased friction

of the blood as it passes through the internal apertures of the heart.

The *rubbing* sound conveys the idea of two surfaces moving over each other; and its occurrence, which is characteristic of pericarditis, has been attributed by some to the membrane becoming dry under the inflammatory action; by others, to the surfaces becoming rough. The latter appears to me the more probable explanation, because we have no evidence of the degree of dryness which is here assumed ever really taking place; while we have proof positive of the surfaces becoming rough, and that to an extent which there is no difficulty in believing to be capable of generating sound. But as the inflammation must be fully established to produce the rubbing sound, so, though one of the most certain, it is not always the earliest among the symptoms. In more than one case, I have suspected very strongly, from other symptoms, that pericarditis had supervened before there has been any change of sound (sufficiently evident at least to be unequivocal), and within twelve or twenty-four hours afterwards the rubbing sound has been quite distinct. The nature of this sound is, I think, sufficiently expressed by the term I have employed, and which is that now generally adopted. A rubbing sound may also occasionally, though I believe it very rarely does, accompany the act of respiration; this, however, can scarcely be confounded with that dependent upon the action of the heart.

But as the sound alluded to depends, in pericarditis, upon a cause which is transient, so is it one which does not endure beyond a very limited period; for if the opposing sides of the pericardium become coherent, or if they be further separated by serous effusion, then, in either case, the attrition ceasing, the sounds are no longer emitted, although the inflammation may still hold on its course. And again, if the disease be overcome, the lymph may be absorbed, and thus the cause of the rubbing sound will equally be removed.

Distinct and unequivocal as this sound occasionally is, yet in other cases, which nevertheless were certainly pericarditis, I have not been able to detect it, neither have those who will sometimes hear a sound so fine

"That nothing lives 'twixt it and silence."

Were it worth while to speculate on the cause of our being thus occasionally baffled, we might presume that it depends upon some modification in the extent or nature of the effusion.

But there is also another circumstance which operates in producing this negative result; I mean, that we generally have a sound which is louder, more persistent, and more familiar to us, by which the rubbing is masked, and our attention arrested. This is the *blowing* sound in one or other of its numerous degrees and modifications. In many cases

it may be heard all over the region of the heart, but is usually most distinct at points corresponding to the aortic and to the auriculo-ventricular valves of the left side: that is to say, that where the relative situation of the parts is not changed by previous disease, the blowing sound will generally be best heard by placing the ear or the end of the stethoscope at the lower part and towards the left side of the third bone of the sternum for the aortic, and a little further to the left for the mitral valves.

Where the blowing is heard with the first sound of the heart, and where it is perceived on placing the instrument over the carotid arteries, it is reasonable to conjecture that it depends upon disease having produced, in the aortic valves, certain changes which cause obstruction to the free exit of the blood from the ventricle. If the blowing be contemporaneous with the second sound, and not heard over the carotids, it probably will be found to depend on disease at the orifice between the left auricle and ventricle. Frequently a whizzing sound is heard with both actions of the heart, depending, in general, upon the aortic and mitral valves being both implicated in the disease. The degree to which the blowing sound is present varies much in different instances; but in well-marked rheumatism of the heart, it is rarely, if ever, wholly absent. Its general character, where the valves have not been previously damaged so as to admit of regurgitation, is that of a

simple bellows sound; but sometimes it assumes a harsher character, and sometimes a distinctly musical tone. I have heard a clear musical whistle nearly from the onset of an attack of rheumatic carditis, diminishing in loudness as the disease was overcome, and passing into a simple bellows sound, which remained permanent. Indeed, there can be no doubt but that this anormal sound may entirely cease in recent attacks, the causes on which it depends being, it is to be presumed, wholly removed; but in older cases, and especially in those where the heart affection has not been early and vigorously met, the sounds alluded to are permanently present, affording every variety of intensity and tone, and too often resisting every method hitherto attempted for their removal—a circumstance obviously depending upon irremedial structural changes having been produced. And this leads me to remark, that it is of great importance, in cases of acute rheumatism, to ascertain, at the earliest possible period, the condition of the heart, that we may not confound the phenomena produced by the attack then present with those resulting from previous organic change.

Another phenomenon connected with sound, which is sometimes, though not so generally, present in the first attack of rheumatism of the heart, is the extent to which the cardiac region becomes dull on percussion. In the normal condition the dulness extends over an inch and a half, or two inches square,

the lung encroaching on the rest of the surface. But in disease the lungs frequently leave a much larger space over which they do not pass, and consequently the percussion is dull over a corresponding extent. Where this dulness comes on during acute rheumatism of the heart, it may reasonably be attributed to effusion into the pericardium. If the dulness over an increased extent depend upon enlargement of the heart, this will generally be found to have resulted from previous attacks of rheumatism, and scarcely affords any facility in detecting pericarditis; unless, indeed, by giving a larger surface over which the rubbing sound may be heard. If the dulness depend upon effusion, this will rarely assist us in originally detecting pericarditis, although it affords us a means of determining the extent to which such effusion has proceeded, and also whether the disease is on the increase or decrease. It does not usually assist us in detecting the pericarditis, because, before the effusion can have proceeded so far as to produce an unequivocal augmentation in the surface over which the sound is dull, the disease in all probability will have sufficiently manifested itself by other signs. And again, in that form of pericarditis which attends acute rheumatism, the effusion is most frequently chiefly composed of lymph, which, though it may be in quantity sufficient to produce embarrassment in the action of the heart, yet the mere increase of bulk thus produced is not usually

to such an extent as to be satisfactorily judged of by percussion. A much more appreciable, and therefore more generally useful sign, in reference to sound afforded by the effusion which takes place into the pericardium in rheumatism, is the sound of the heart itself being observed to become progressively more feeble and more distant, while the general symptoms show that this is not dependent upon mere sinking of the vital powers. It is proper, however, to remark, in connexion with dulness in the region of the heart, whether from its increased bulk, or from effusion into the pericardium, that either may be masked by an emphysematous portion of lung interposing.

Of the general symptoms which indicate that the heart has become implicated in an attack of acute rheumatism, the most striking is the aspect of the patient. I venture to say there is no observant practitioner who has not had occasion, on going into the wards of an hospital, to stop at once on coming to a rheumatic patient whom he may have seen the day before apparently doing well, and proceed to examine the heart with the conviction on his mind, before he has asked a single question, or applied his stethoscope, that carditis has supervened in the interval. This is one of the many instances in which the eye can detect what the pen cannot express. The system has taken the alarm at the new inroad of the malady; the consequent distress is depicted in the countenance, and told in every

attitude and every movement. The expression is anxious; the breathing rather shallow; occasionally there is cough. The patient is sometimes very restless, but more generally lies on the back, or right side; at least it is rare to see him choose the left. Here we have intense fever, but for the most part without the restlessness and tossing that usually attend that state. Indeed there is occasionally a fixedness in the general aspect—I had almost said in the deportment of the patient—quite remarkable; he becomes, as it were, passive, and while the immobility with which he retains one position would lead us to suppose that any other would be intolerable to him, yet I have known such a patient, upon being moved, remain in his new position apparently as determinedly as he had previously done in the other. Although, therefore, reclining on the back, or a little to the right, be the most common, and therefore, we must presume, generally the easiest posture, yet the unwillingness to move, even to resume this attitude, probably depends upon the effect produced by motion of any kind on the heart's action, which thus becomes for the time still further embarrassed. In the cases where this unwillingness to any change of posture is most marked, the action of the heart is usually feeble, and the sounds indistinct. Dr. Latham, who has excellently described this phenomenon, attributes it, and probably with justice, to the presence of fluid effusion in the pericardium. And

here I may observe that where copious effusion takes place rather rapidly into the pericardium, unaccompanied by hydrothorax, the patient will sometimes prefer to lie perfectly flat on the back, without having the shoulders raised at all; being just the reverse of what we are almost invariably taught in books. Such, at least, has been the fact in several cases in which I had an opportunity of examining the bodies, and in others where the patients recovered, after having had symptoms which led me to believe that there had been fluid in the pericardium.

Where the peculiar anxiety of countenance above mentioned, and the reluctance to change of posture, are most marked, there will also frequently be seen a disposition to syncope. I say a *disposition* to this state, because I think the patient very rarely does actually faint. The pulse, too, becomes unsteady, and varies in the character of its beats, but rarely has any considerable power. There is heat of skin, and thirst, and furred tongue, and sluggish bowels, and high-coloured urine, and all the usual symptoms of inflammatory fever.

Now when either all, or several of the phenomena above described, occur in the course of a case of acute rheumatism, there cannot be any difficulty in detecting the nature of the complication which has added to the severity of the primary attack; there can scarcely be room for hesitation in declaring pericarditis to be present.

But there is one peculiar train of phenomena which may tend to divert the attention of the practitioner from the real seat of mischief, and which requires an especial notice.

I have above alluded to the remarkable change in the expression of the patient which usually attends rheumatism of the heart. Now this sometimes goes much further; it passes into the anxiety of delirium, or the wildness of insanity. This is no new fact: it was referred to by Andral many years ago; was stated in his Gulstonian Lectures by Dr. Francis Hawkins; was enlarged upon by Dr. Latham; and more recently, has been especially mentioned by Dr. Watson in one of his published clinical lectures. So far as I know, in all the cases hitherto recorded in which rheumatism of the heart has been attended by symptoms of inflammation of the membranes of the brain, the patients have died, and the encephalon has been found intact, or at least without any unequivocal evidence of inflammation. Indeed, it is the remarkable fact of no diseased appearances having been found in the part to which the chief symptoms were referred, which led to the cases being placed on record. I have reason to believe, however, that pericarditis may occur, accompanied by cerebral symptoms of the severest character, and still the patient recover under the persevering use of proper remedies. The following appear to be cases in point:—

Mary Hall, ætat. 27, admitted in the third week of rheumatic fever, January 25, 1836. She made no complaint excepting of the limbs, but her expression was anxious; and on being questioned, she acknowledged she had some uneasiness in the region of the heart, in which situation pressure between the ribs gave pain. Nothing anormal in the sounds of the heart, or respiration, could be perceived.

26th.—Makes no complaint, but shrinks from pressure in the region of the heart, On applying the stethoscope to-day, a rubbing sound is distinctly perceived at the left and lower third of the sternum; considerable faintness; much anxiety; *some incoherence.*

27th.—Denies that she has any uneasiness in the chest, but is too incoherent to be trusted as to what she feels. No rubbing sound can now be perceived, but the pulsations are heard more obscurely, and as if more distant.

Constant delirium now supervened, with so much restlessness and jactitation, that no satisfactory examination of the heart could be made for several days, during which time it was necessary to put on a strait-waistcoat.

On the 4th of February, during a quiet interval, the pulsations of the heart were found to be feeble, distant, and intermittent.

The same examination, and with the same result, on the 5th. The pulse on both days from 100 to 105; feeble and intermitting.

8th.—Calmer. The pulse 100, more steady, but with occasional intermissions. Sounds of the heart again approach the ear, the idea of distance being diminished. No rubbing.

12th and 13th.—A fit each day, of epileptic character, to which it does not appear that she has ever before been subject. Complains of pain of the left mamma. No change in the character of the sounds.

From this time she gradually recovered, having had no further recurrence of the symptoms, and the action of the heart having become quiet and natural.

I have nothing to say of the treatment in detail, my present object being only to illustrate the extent to which the functions of the brain may participate in this form of rheumatism. I may state, however, that after the supervention of the heart symptoms, she was bled once generally, once locally; was blistered on the chest, and took calomel and opium, with purgatives.

Thomas Spratt, ætat. 39, of rather intemperate habits, was admitted into St. George's Hospital, September 21st, 1837, having laboured under acute rheumatism for three weeks. The attack commenced in the shoulder and side of the face, but soon extended to other parts, particularly the hands and feet, which were swollen and red, while he had all the common symptoms of rheumatic fever. He was bled and purged, and took calomel and opium,

without any thing occurring to arrest attention, till the 24th, when he was observed to be incoherent, with much wildness of expression. He was now ordered a grain of opium every six hours; and the gums being sore, the calomel was omitted.

25th.—The delirium had increased, so that he was at times quite unmanageable; he had had what was called by the nurse "a fainting fit;" pulse 100, with occasional intermission: rather obscure sound of friction, and some degree of bellows murmur, are heard on applying the stethoscope over the heart.

Half a grain of acetate of morphia was given every six hours, and a strait-waistcoat put on.

28th.—Delirium continues; puts his hand occasionally to the heart, and on being questioned, says he has pain there; but his answers have been too incoherent since the 24th to be relied upon. The sounds of the heart are obscure; but some degree of rubbing continues.

The acetate of morphia was increased to half a grain every four hours.

30th.—Much quieter; pulse 85; sounds of the heart more distinct; rubbing no longer audible; but the blowing sound continues, though in a slighter degree.

From this period he gradually recovered; and after a time the sounds of the heart became natural.

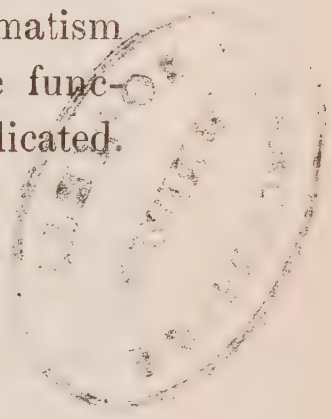
I admit that, as in the cases above given, no opportunity was afforded of examining the brain, so

it may be matter of question whether that organ was, or was not, the seat of inflammation. My belief that it was not, resulted from my previous knowledge that sympathetic disturbance of the brain, of the most violent nature, may take place in carditis, though there be no organic affection of the encephalon, or at least none which leaves any trace behind. The physical signs left no doubt of the existence of pericarditis, while there was neither heat of scalp, nor injection of the eye, nor intolerance of light, such as we usually find in inflammation of the membranes of the brain. Again, in a case recorded by M. Andral, there were delirium, convulsive twitchings, tetanic spasms and coma; yet all this was found by the autopsy to have arisen in a case of pericarditis, without a single vestige of disease in the head.

While I readily admit that the assistance to be derived from the stethoscope in general practice has by some been greatly exaggerated, yet here, in such a case as rheumatic fever, with extension of the disease to the heart, producing general symptoms which are obscure, or causing sympathetic affections of a distant organ calculated to draw off the attention from the real seat of the inflammation, or perhaps not exciting symptoms any where calculated to raise suspicion—one and all of which conditions I have seen; I say that, under such circumstances, the assistance to be derived from auscultation is paramount; and that he who refuses to make use of it

denies himself the only means we possess of arriving at a correct diagnosis—thus placing in jeopardy the life of his patient, to say nothing of the peril to his own reputation.

But there is another affection of the head, altogether different from the preceding, which, nevertheless, I am inclined to think has been confounded with it—namely, a true inflammation of the brain or its membranes, connected with rheumatism. This, however, in all the cases of it I have ever seen, has arisen in connexion with rheumatism of the synovial membranes, and without any pericarditis. On the other hand, I have never known fibrous rheumatism affect the brain except secondarily (I believe functionally), and after the heart had become implicated.



CHAPTER VI.

IMMEDIATE EFFECTS OF RHEUMATISM ON THE PERICARDIUM, AND ON THE INTERIOR OF THE HEART; DESCRIPTION OF THE ANORMAL APPEARANCES — SECONDARY CHANGES RESULTING FROM RHEUMATISM OF THE HEART—DISEASE OF THE VALVES; HYPERTROPHY AND DILATATION OF THE CAVITIES—SIGNS OF THESE.

Rheumatism of the heart, in the great majority of cases, is cured, or so far alleviated that the patient recovers from the primary attack. Unless, however, the treatment has been both energetic and judicious, the organ receives an injury which leads to slowly increasing change in its structure, and thus ultimately to a fatal result. Some, indeed, are cut off during the first attack, and the appearances which then present themselves are convincing evidences of the nature of the disease. The pericardium is found to have been inflamed, and as regards this membrane I know of no difference which exists between the changes effected by rheumatic and common inflammation.

The results to which the inflammation has ulteriorly given rise, are sometimes in description con-

founded with those which spring directly and immediately from this cause. In a recent case the appearances are striking. On raising the sternum, lymph is sometimes perceived even in the anterior mediastinum. The bag of the pericardium is seen to be inflamed; and here, unlike what I had occasion to mention with respect to rheumatism of the joints, the effects are conspicuous, and the inflammation marked by a greatly increased number of vessels carrying red blood. The pericardium feels pulpy, or fluctuating; and frequently on cutting through it we do not at once expose the heart, but find a layer of lymph intervening, adherent partially or more extensively to both serous surfaces.

But the anormal appearances are generally not limited to the exterior. The valves, especially those on the left side, may be inflamed. Ulteriorly the change is manifested by their augmented size and thickness; but at a very early period, and supposing it to be a first attack, the only thing which may be visible is what might be described as a slight tumefaction at the ostea: looking from the left auricle towards the ventricle, the aperture seems narrowed: and I have seen the portion of the valve where its sides meet in closing, of a flesh-colour, presenting through a magnifying glass the appearance of minute spots, like granulations, with vessels carrying red blood entering them from the interior of the auricle. The aortic valves are sometimes of a pink hue to the

naked eye, though there may be no separate red vessels to be detected even with a glass. Points like very minute granulations may sometimes be perceived, being apparently the earliest stage of those small bead-like projections which are frequently seen at a more advanced period. M. Chomel has also described the appearance of granulations, varying in size from a pin's head to a millet-seed, as occurring in a recent case both on the mitral and aortic valves; the former affording unequivocal evidence of being inflamed by having upon it a portion of adherent lymph. In the case to which I have above alluded, there was perhaps some narrowing of the aortic orifice, as if the parts around had been slightly tumefied; but this was not so conspicuous as in the auriculo-ventricular aperture. Red vessels could be traced from the surface of the auricle to its valve, but not so with respect to the ventricle. On the right side there was some opacity of the mitral valve, but nothing further. The pulmonary valves were healthy. This is the earliest condition in which I have had an opportunity of examining the endocarditis which accompanies rheumatism—that morbid change in the valves of the heart which ultimately leads to their permanent opacity and thickening, and to various important alterations, not only in the heart, but also as a secondary consequence in other parts of the body.

In a case which is related in the fifth volume of the Edinburgh Medical and Surgical Journal, the

inner surface of the right ventricle is stated to have been inflamed, in a girl who died of rheumatic fever, while both the mitral and tricuspid valves were coated with lymph. In the very few cases, however, which I have seen, where death had taken place in the primary stage of acute rheumatism, the appearance of inflammation has been most conspicuous in the auricles, particularly the left, but without extending into the ventricle so much as what we meet with in cases of longer standing might lead us to expect. And again, if we are to take opacity and thickening as proofs of preceding inflammation, such appearances in those who die of the secondary consequences of a damaged heart are much more remarkable towards the auricular than the ventricular connexions of the valves common to both cavities; while changes in the semilunar valves, if not strictly limited, are more wont to extend towards the inner surface of the arteries than the ventricles; and more especially as regards the aorta.

The above description applies to the immediate effects of rheumatic inflammation on the textures of the heart; but in our post-mortem examinations we are much more frequently called upon to witness the changes which have been produced by the slow and continued influence which follows the primary injury. And here it will be most convenient to describe what those changes are, before we speak of the signs by which they are indicated.

The lymph which has been effused on the external surface of the heart may, there is reason to believe, disappear under the influence of proper remedies, and the integrity of the viscus be in this respect maintained. Indeed, it is apparent that the powers of nature, aided by judicious treatment, are much more successful here than as regards the restoration of the lining membrane, when *endo-carditis* has existed; for it is not uncommon to find the valves extensively diseased, in consequence of rheumatism, where the external covering of the heart is little or not at all different from its healthy condition.

The most common morbid appearance of the pericardium, of a permanent nature, is opacity and thickening—sometimes general, but more commonly in patches. This change is much more conspicuous on the surface of the heart than in the free part of the pericardium, and may be accounted for by some portions of the lymph effused during the period of active inflammation having become organised. It is to be supposed that some degree of thickening of the pericardium attends that condition in which it has been inflamed, and remains subsequently opaque; but the extent to which increase of actual bulk occurs is extremely limited; and wherever there is an opaque patch of perceptible thickness, this may almost invariably be separated from the pericardium by peeling, and conveys the idea, when thus examined, rather of a layer or layers of adventitious membrane superim-

posed, than of interstitial increase of dimension in the pericardium itself. Or if the pericardium appear thickened, when we come to examine this minutely we shall generally find either that layers of lymph have been effused upon the surface, or that it has been poured out between the fibrous and serous membranes, so as to separate them.

In those cases where the effusion has been more extensive, or the absorbing powers less active, the two surfaces of the pericardium become glued together by the interposed lymph, which speedily assumes an organic form—at first soft, and easily torn, but progressively becoming more dense, till it assume the appearance of a close cellular membrane. Most frequently this union between the pericardial surfaces is general, but occasionally it is partial. In yet rarer cases the adhesions exist only at one or more spots; and sometimes the connecting texture presents the appearance of bands or layers joining the surface of the heart to the bag of the pericardium.

When the parietal pericardium is universally adherent to the surface of the heart, it also frequently forms anormal adhesions externally, particularly if the patient have been subject to repeated attacks of rheumatic fever. In such case the pericardium may be firmly united to all the adjacent parts, as if a quantity of liquid size had been poured in, so as to fill up every interstice, and had then become organized.

There are no symptoms by which the presence of mere thickened patches can ever be detected before death; nor, under ordinary circumstances, can adhesion of the pericardium be convincingly ascertained during the life of the patient. Where the adhesions are partial, it has been supposed that pain or other distressing sensation would be produced when the individual was placed in such position as to cause any degree of suspension or dragging upon these adventitious ligaments; we should also expect adhesions about the apex of the viscus to disturb its action more than such as are situated at its basis. Louis has given a case, in which the patient was unable to lie on the back, in consequence of a smarting pain in the region of the heart being excited by this posture. On examining the body, a single firm adhesion was found extending along the right ventricle; so that in the supine posture this must have been dragged upon by the heart, and must consequently have put the parietal and cardiac portions of the pericardium on the stretch at the points of union. Dr. Hope has mentioned a "jogging or tumbling" motion of the heart as characteristic of such partial adhesions; but I have seen more than one case in which nothing of the kind was present, and I fear that much remains to be done ere we can speak with confidence of such marks of diagnosis. When the adhesion is universal, so that the heart is, as it were, firmly glued to all the

adjacent parts, a certain degree of dragging inwards of the intercostal spaces and epigastric region may be perceived accompanying the heart's action; at least in some few instances this has appeared to me to be the case; but in others nothing of the kind has been perceptible during life, although on examination after death the pericardium has been found universally adherent.

It seems to be in certain stages and conditions of the thickening caused by lymph becoming organised, that the sound compared by the French to the *creaking of leather* occurs: it is one which I believe to be but rare, and to have been mixed up in description with the more common sound of friction.

Important as we must acknowledge these results of pericarditis to be, they are, nevertheless, greatly inferior in frequency, and in their consequent evils, to those changes to which the internal parts of the heart are subject from rheumatic inflammation. The valvular apparatus is that the organization of which undergoes the most remarkable modifications, and leads to the most destructive consequences, both as regards the functions of the heart itself, and the integrity of the general system. With respect to the external covering of the heart, I do not know that one portion of it is decidedly more liable to disease than another; but if I were to be guided by the results of my own experience, I should say that where the inflammation did not extend over the

entire pericardium, the anterior portion was more frequently inflamed than the posterior. In regard to the lining membrane, there can be no doubt that the manifestations are greatly more frequent and more severe in the left than in the right side of the heart. This has been attributed by some to the more stimulating influence of the arterial than venous blood, but it is by no means obvious in what manner this should be productive of disease. On either side the portion of the lining membrane chiefly implicated is that which forms the valves, and considered with reference to rheumatism, the rationale of these parts being most obnoxious to attack is evident enough when we consider the pre-eminently fibrous nature of their structure. In those who have had the heart affected in rheumatism, the most common circumstance is to find both sets of valves of the left side diseased; but if the morbid alteration be limited to one, then the auriculo-ventricular is more apt to shew change of structure than the aortic valves, whereas I think that in valvular disease from other causes the reverse is the case. By much the most common kind of change is more or less of thickening, and this, more especially in the mitral valve, is sometimes accompanied by unequivocal evidence of previous inflammation of the adhesive character, its different portions being frequently more or less united together, or glued to the adjacent surface of the heart. When the auriculo-ventricular valves on either side are

opaque and thickened, the participation of the lining membrane beyond them in such change is for the most part much more marked in the auricle than in the ventricle; corresponding to what I have already stated with regard to the acute and earlier stage of the disease.

In the early stage of valvular inflammation, as I have already said, we sometimes find little rounded prominences like granulations; and at the more advanced period which we are now considering, excrescences present themselves, to which it is most probable that those granular deposits have given rise. They consist of formations more resembling venereal warts than any thing to which they can easily be compared; and hence, probably, it was that Corvisart attributed to them a syphilitic origin. They are met with both on the arterial and auriculo-ventricular valves, (I think more frequently on the latter), and may be situated either on the surface or edge of the valve: they are generally pretty firm, roundish, or elongated, and sometimes attain the length of several lines, floating loose in the stream of blood.

Occasionally other changes occur, but they are not so unequivocally the result of rheumatism. For example, sometimes the thickening of the valves, which seems to depend on lymph effused between their layers or upon the surface, becoming organized, proceeds to a greater extent than we have hitherto

supposed, and passes into cartilaginous or even bony induration. By these changes the natural elasticity of the valves is partially or wholly destroyed, and their functions impaired to a corresponding extent. sometimes they are obviously incapacitated for acting, and remain as rigid projections at the orifices they were designed to close, impeding the flow of blood through them to a greater or less extent. In rare, but well-ascertained instances, they become brittle, and are more or less lacerated, folded back into unnatural positions, or presenting loose flaps, moveable by the current, but no longer useful as flood-gates. In the aortic valves more especially, the portion towards the free edge is attenuated, or even perforated, and cribriform. I do not think, however, it is by any means proved that the changes above mentioned are peculiarly caused by any form of rheumatism.

In the preceding description of the effects of rheumatism on the heart, I have spoken at large on *pericarditis* and *endocarditis*, but I have hitherto said nothing of *carditis* itself; and for this reason, that I have never seen any satisfactory instance of the muscular fibres of the heart being inflamed, in connexion with rheumatism. I have, indeed, seen the substance of the heart softer than natural when the membranes had been inflamed, but I have never seen any thing which could be called tumefaction, or interstitial effusion, or the formation of purulent

matter in the heart after rheumatic fever, though I have seen some of these effects result from its inflammation unconnected with rheumatism.

The changes which the muscular parietes of the heart undergo, in connexion with rheumatism, seem to depend chiefly, if not exclusively, upon mechanical causes. In the great majority of cases in which the valves are diseased, the walls of the heart will also be found changed, and such change generally consists in augmentation of bulk. The most common deviation from the natural condition, in this respect, is an enlargement more especially of the left side of the heart; but there is a remarkable difference in the statements made even by the best authorities as to whether this increased size of the cavities is more frequently attended with augmented or diminished thickness of their parietes; in proof of which it is sufficient to mention, that Baillie says it is most common to find them attenuated, and Laennec, on the contrary, that it is most common to find them hypertrophied. In rheumatism, I have no hesitation in stating hypertrophy with dilatation to be by much the most common change.

The most simple explanation of the changes alluded to in the muscular structure of the heart, and the one most generally admitted, is that which connects them with the state of the valves. Now the most common condition of these parts, as a consequence of rheumatism, is a certain degree of thicken-

ing and stiffness, both in the aortic and mitral valves, especially the latter—a degree of thickening sufficient to present an impediment, but not an insurmountable obstacle, to the passage of the blood through the ostea of the heart. This state of matters requires more vigorous action, both from the ventricle and auricle, but of course more particularly from the former; and under this increased action the muscular fibres *grow*, apparently on the same principle as any other muscle is augmented by exercise. But if the obstacle be greater, such as the heart cannot easily, or perhaps cannot at all, sufficiently overcome, then it is not difficult to understand how the cavities, never wholly emptied, should yield to the slow operation of this continued dilating force, and at length become permanently enlarged, and their exhausted parietes attenuated. I beg, however, not to be understood as holding that these are the only causes of hypertrophy, on the one hand, or of dilatation, on the other.

Where any impediment to the flow of blood is presented by the valvular apparatus, it is to be expected that the muscular fibres which have to overcome such impediment will be those to be enlarged; and, as a general rule, obstruction at the aortic orifice gives us hypertrophy, with dilatation of the left ventricle; while any obstruction at the mitral valve affects the auricle in a corresponding manner. But there is yet a different state of matters: we may

have the aortic valves perfectly healthy, and yet the left ventricle unusually muscular. I think it probable that in such cases the muscularity will be found to consist almost entirely of increased bulk of the columnæ carneæ, and that the mitral valve will be found thickened, or otherwise changed, in such manner as to have required more than usual effort to make it act. Such, at least, has been the case in several instances of this nature which I have examined; and in one which occurred at St. George's Hospital in the year 1837, these phenomena were conspicuously displayed. The aortic valves were healthy; the mitral much indurated. The musculi pectinati of the left auricle were hypertrophied, owing, I presume, to the obstacle they had to overcome in forcing the blood through the auriculo-ventricular orifice. The columnæ carneæ of the left ventricle, too, were very large and strong, having to act upon a stiff and unyielding valve; but the general body of the ventricle (that portion the action of whose muscular fibres had to propel the blood through the healthy aperture of the aorta) was in no degree increased in thickness, and, in fact, presented a remarkable contrast to the muscular bundles connected with the diseased valve.

In the above cases, where the heart has been permanently damaged by rheumatic inflammation, the diagnosis, to such an extent as serves all the purposes of useful practice, is made without difficulty.

The most conspicuous symptom, supposing the nervous energy of the patient to be unimpaired, is to be found in the action of the heart. This is more turbulent than natural; the contraction of the ventricle occupies a perceptibly increased period, is accompanied by a kind of heaving, and there is frequently a greater than natural projection of the chest at each pulsation, which is very characteristic. If one end of the stethoscope be placed over the heart, and the fingers applied to the other extremity, the blow may not only be felt but seen, by the impetus communicated to the instrument. There is also a peculiar prolonged swell in the arterial pulsations. If there be great enlargement with thickening, then, in addition to the above sign, there is also dulness on percussion over a preternatural extent of surface, corresponding to the increased size of the viscus. If there be dilatation without hypertrophy, the dulness generally exists over an increased space, but without the augmented impulse; and these very simple diagnostic marks are sufficiently clear to afford the means of forming an opinion which will be correct in the great majority of cases. It is remarkable how frequently patients labouring under hypertrophy and dilatation, with the increased force and duration of the heart's action to which they give rise, are yet themselves unaware of any thing unusual. I have repeatedly questioned such persons, and have often found that, unless under

excitement, they felt nothing unusual about the heart; and I can venture to say, that, as a general rule, they do not complain nearly so much as those labouring under merely nervous palpitations without any organic change.

Another almost constant attendant of an old rheumatic heart is the blowing sound; and as this generally bears a relation to the extent of valvular disease and to the force of the heart's action, it is reasonable to conclude that it depends upon the passage of the blood through the ostea of that viscus, whether in the proper course of the fluid, or by regurgitation.

In the great majority of cases, the phenomena presented are increased size and thickness of the valve; but notwithstanding its increased dimensions, it very generally does not close the auriculo-ventricular aperture, which, if the disease be of long standing, is yet more considerably augmented. It is to be kept in mind, however, that the blowing sound may also arise from causes apparently independent of any permanent disease.

This sound also varies much in its intensity and tone, passing by insensible gradations from a soft blowing to a harsh whizzing or rasping sound, and in some—not *very* rare instances—even striking a distinct musical note; perhaps more like cooing than any thing else with which it can be easily compared. This was the simile used by Dr. Elliotson, who, I believe, first observed and described the phenomenon, and

I know no better mode of conveying a correct idea of it.

That these variations depend upon differences in the shape of the aperture or tension of the parts through which the blood passes, is very probable. Indeed, I have no hesitation in admitting that the intensity of the sounds bears a relation to the extent of valvular disease and force of the heart's action, as a general rule; but I must add, that every now and then we meet with cases in which we find little apparent disease, where there had been much of this anormal sound, and *vice versâ*—clearly proving to those who have no theory to support, that there is something more in the phenomena than is yet understood, "if philosophy could find it out."

CHAPTER VII.

TREATMENT OF RHEUMATIC INFLAMMATION OF THE HEART—BLOOD-LETTING NECESSARY, BUT WITH CERTAIN RESTRICTIONS—PARAMOUNT IMPORTANCE OF MERCURY—USE OF BLISTERS—LIABILITY OF THE PATIENT TO RELAPSE—REMEDIES ADAPTED TO THE CHRONIC FORM OF THE DISEASE.

ALTHOUGH the circumstance of the heart becoming implicated in acute rheumatism adds greatly to the interest and danger of the case, yet if the view taken of the treatment in a preceding chapter shall have been adopted, a modification only, not an entire change, of the plan will be required.

The treatment most efficient in the early stage of rheumatic fever I believe to be depletion, followed by opium; the chief remedies in rheumatic inflammation of the heart will be found in bleeding and mercury.

The abstraction of blood requires more attention here than in rheumatism of the external parts, for while its necessity is augmented, the power of sustaining it has been diminished by the function of the part now implicated in the disease. A patient with rheu-

matic inflammation of the heart will not usually bear so large an abstraction of blood without fainting, as where the disease is confined to the external parts, and syncope, under such circumstances, is to be avoided. It must be borne in mind that here the blood-letting is not less essential; but it is necessary to take away a smaller portion at a time, and consequently to repeat the depletion more frequently. Fourteen ounces may be regarded as the average quantity proper to be abstracted under such circumstances, and this may require to be repeated twice or even three times in the first twenty-four hours. Local depletion must also be adopted, and it is of much more value here than in other forms of rheumatic inflammation; so that leeching and cupping, but more particularly the latter, become very important auxiliaries. In such cases it is during the first forty-eight—indeed I might say the first twenty-four—hours that the effects of depletion are most remarkable; at a later period, and in a modified degree, they continue to be useful, but they much less frequently extinguish the inflammatory action which now produces effusions, more especially of lymph; and it is this circumstance which constitutes the most important difference between the affection of the joints and of the heart, at least as to their treatment.

Lymph effused about a joint may render it stiff and troublesome, but when effused on the surfaces of the heart, it may be destructive of the function

of the organ, and with this of the life of the individual. We must therefore direct our treatment more energetically, and for a longer period, against this effect of the inflammation. I allude to the use of mercury, which must be administered so as to bring the patient as speedily as possible under its influence, and the effect of the remedy must be kept up till we are satisfied that it has done all it is capable of effecting towards the removal of the lymph which had been poured out. Of the different preparations of mercury for this purpose, calomel is, I believe, beyond all comparison the best, and a scruple in twenty-four hours may be stated as forming the average quantity which adults under such circumstances require at the onset of the attack; the quantity being immediately diminished, but the remedy not abruptly discontinued, on the gums becoming tender. It is always to be kept in mind, too, that the object is not to make the mouth sore, but that the soreness of the mouth is merely to be looked upon as evidence of another and more important object having been accomplished—namely, bringing the system under the influence of this most powerful agent.

At the commencement of the pericarditis, vigorous purging is also to be employed; but as soon as the stethoscopic and other indications show that effusion of lymph has taken place, the laxatives must be diminished, that they may not interfere with the

mercurial action, which then becomes paramount. Sometimes, indeed, it is necessary to abandon them altogether, and to exhibit opium in such quantity as may be sufficient to prevent the calomel from running off by the bowels. Upon the whole, we may say that purging and opium are less, while calomel is much more, conspicuously useful here than in the form of acute rheumatism which is limited to the external parts.

In speaking of mercurials, I have only mentioned calomel, because I regard it as by far the best, and I believe its tendency to run off by the bowels may always—or almost always—be controlled by opium. Should this not be the case, however, we must have recourse to the milder preparations, and to the inunction of mercurial ointment, which must, under such circumstances, be used very freely. I cannot recommend the use of sudorifics in this form of rheumatism; the more stimulating remedies of this class tend to keep up the action of the heart in a greater degree than is desirable, and I have thought antimonials too lowering where the vital powers of the heart are already depressed. There is in this respect a great difference between the effects of tartarized antimony and blood-letting; the former lessens the power of the heart to accomplish its work, the latter gives the heart less work to do.

When the symptoms show that effusion is taking place into the pericardium, blisters over the region of

the heart become of use, and ought to be repeated as often as possible while the symptoms endure: they come into action after the local blood-letting, and may be persevered in with advantage as long as the symptoms of effusion into the pericardium are kept up.

The objects in view are to extinguish the inflammation at its onset if possible, before lymph has been poured out, for which purpose bleeding and purging are the best expedients; but if we fail in this, as in acute cases we generally shall, unless we have an opportunity of treating them at the very onset, then the mercurial action, vesication, and moderately open bowels, are the remedies to be employed.

Occasionally, after such an attack, even when we have reason to believe that the viscus is not damaged in structure, there remains a morbid irritability of the heart, which is easily excited to palpitation—a condition best remedied by an opium plaster to the chest, and a moderate opiate internally at night persevered in for some little time. Failing these, the hydrocyanic acid—two to four minims of Scheele's—exhibited three times a day with a light bitter, is frequently of service.

Another very important point, after an attack of rheumatism of the heart, is, to keep the patient as much as possible at rest for some time afterwards, in order that the organ may have an opportunity of recovering its strength and natural mode of action.

In the class of persons most liable to the disease, this indication is the one most prone to be neglected, because they are generally obliged to resume their avocations with as little delay as possible.

When any viscus has been once inflamed, it seems to acquire a liability to resume the same state on the application of causes slighter than those which originally produced it; and certainly those who have had rheumatic pericarditis once are exceedingly subject to its return—a circumstance which renders it proper in all cases of rheumatic fever to ascertain whether it be a first attack, and if not, what course the disease has run on any former occasion.

In many cases, where the heart has been implicated in acute rheumatism, the circumstance is overlooked at the time, and permanent injury done to that viscus in consequence of lymph having become organized, either on its external surface, or internally, more especially about the auriculo-ventricular valves on the left side. Under such circumstances, no efficient remedies have hitherto been discovered; but benefit appears in some instances to arise from perseverance in the use of soothing applications, such as anodyne plasters externally; while internally we give moderate opiates, paying very strict attention to the stomach and bowels, and avoiding especially every kind of food productive of flatus.

To these may be added, as an expedient still *sub judice*, the iodide of potassium—a medicine certainly

of much use in some forms of rheumatism, especially where thickening of the textures has been produced, and I am inclined to think sometimes of essential service in rheumatic pericarditis, after we have availed ourselves of all that mercurial action is capable of accomplishing.

It is undoubtedly in the early stage of rheumatic affections of the heart that our remedies display most power; and from a first attack, at all events, I believe perfect recovery may generally be effected if the nature of the disease be understood from its commencement, and the requisite treatment be adopted with promptitude, and persevered in with energy.

CHAPTER VIII.

CAPSULAR RHEUMATISM; ITS SEAT—DIFFERENCE BETWEEN IT AND THE PRECEDING FORM—PERMANENT CHANGES PRODUCED IN THE AFFECTED JOINTS—NATURE OF THE DEPOSIT—CARBONATE OF LIME, AND LITHATE OF SODA—SUPPURATION IN THE JOINTS AN OCCASIONAL CONSEQUENCE OF CAPSULAR RHEUMATISM—CAUSES AND SYMPTOMS OF THE DISEASE.

If being different in their seat, in their symptoms, in their terminations, in the affections with which they are complicated, and in their treatment, be sufficient to prove that a distinction ought to be made between two diseases, then is rheumatism affecting the synovial membranes essentially distinct from the form of rheumatism already considered.

The seat of capsular rheumatism is in the lining membrane of the joints and bursæ of the tendons; being, in this respect, the same as gout, to which it is, in various respects, very closely allied. The parts most liable to its attacks are the feet and hands, where it is, for the most part, easily recognized by the enlargement of the joints; but the peculiar characters of the disease are, perhaps, most

strikingly displayed when it attacks the knee. At first there is pain and heat, which, in the more severe cases, are attended by external redness; and after a time, varying from about twenty-four hours to several days, tumefaction of the parts takes place. The appearance of the swelling, which is limited to the immediate vicinity of the joint, points out the nature of the affection. The effusion is within the synovial capsule, which is consequently distended, and projects at those points where it meets with least resistance. This gives a peculiarity to the shape, which at once strikes the eye. In the knee, the fulness is most conspicuous on either side of the patella and across the lower part of the thigh, just above the joint: frequently also it projects backwards, and may be seen or felt between the hamstrings. Even where the inflammation extends to the surrounding textures, they participate much less in this than in the preceding form of the disease, and the swelling is consequently much less diffused. In the synovial rheumatism the swelling is fluctuating, and bound down by the ligaments of the joint; in the common acute rheumatism, the effusion is external to the capsular ligament—chiefly in the cellular membrane—and does not fluctuate. The shape and aspect of the two thus differ strikingly from each other, and only require to be seen in order to be afterwards recognised without the least difficulty, unless there be something very unusual in the case.

Nor are the histories of the two diseases less remarkable for their points of difference. The capsular rheumatism is infinitely more persistent—affecting, for the most part, several joints, but generally becoming more especially fixed in a limited number, to be ultimately completely localized, and in a certain proportion of them to produce permanent changes of structure, or even disorganization of the parts. In general, it is probable that the effusion into the joint consists merely of an increased quantity of synovia, produced by the excited condition of the secreting surface. Such, at least, was the case in an instance wherein I had an opportunity of examining the body of a patient cut off by another disease, while labouring under a first attack of synovial rheumatism. The joint chiefly affected was the knee; it contained an increased quantity of synovia, and the lining membrane, except where reflected over the cartilages, was of rather a deep red colour, and tumefied. But where the attacks have been repeated, or have expended themselves upon particular joints, much more considerable changes take place.

When the disease recurs several times, the recovery after each attack becomes less and less complete: the joint remains perceptibly swollen; the ligaments which bind the extremities of the bones together are stretched; the relative situations of the articulating surfaces are altered, and more or less distortion is the result. Sometimes the quantity of synovia in

the joint becomes permanently, though not very considerably, increased, the disease assuming an entirely chronic character; and in several such cases, where I have examined the joints after death, I have found little or nothing which could be called disease, with the exception of a preternatural quantity of synovia. In others, the synovia, which, during the acuter attacks, had become increased in quantity, is again absorbed as these subside; but about such joints, particularly after repeated attacks, some degree of thickening remains. This is most remarkable in the small joints, particularly those of the fingers and toes, which are often considerably distorted by it; and when, as sometimes happens, it extends to the larger joints also, it is difficult to imagine any thing more helpless than the subject of such disease ultimately becomes. Fortunately it has almost invariably a chronic character, and is attended with comparatively little pain. This is what Dr. Haygarth described, many years ago, as *nodosities* of the joints, but apparently without fully understanding its nature.

Another appearance which sometimes presents itself is peculiar: the surface of the cartilages of the joint seems as if sprinkled over, in spots of greater or less extent, with a white powder, or smoothly painted of the same colour. When we try to scrape this off, we perceive that it is not merely superficial, but pervades the substance of the cartilage. The form of this deposit is thus considerably different

from that which takes place in acute and well-marked gout, wherein it usually exists in small, irregular, detached portions, or as a kind of exudation which may even escape externally. But another difference, and one which would be very important if it were general, has been pointed out as existing between them. The chalk-stones, as they have been called, of gout, are well known to consist of lithate of soda; but in several cases of old synovial rheumatism which occurred to Dr. Chambers, the white deposit was found to consist of carbonate of lime. This is a curious pathological fact; but I am satisfied, nevertheless, that the difference between the deposit in such cases and in true gout is not such as to constitute a perfect ground of distinction. I have several times examined this smooth white deposit on the articular cartilages of those who have had the synovial form of rheumatism, and in all such instances it answered to the tests of lithate of soda. On mentioning the subject to Dr. Prout, he informed me that, in the course of his experience (which we know in such cases to have been very extensive), he had never met with a deposit of carbonate of lime in the joints. I think, therefore, we may safely infer that this, though proved by the cases of Dr. Chambers to be an occasional occurrence, is a rare one nevertheless.

But there is yet another change sometimes produced by this form of rheumatism—I mean suppurative disorganization of the joint in which it is

situated. This is contrary to what seems to be very generally supposed, and almost invariably laid down in books; but I believe, notwithstanding, that it will be found, on more extended observation, to be a much more frequent occurrence than has been suspected. Less, indeed, is known concerning the morbid changes which take place in the primary seats of rheumatism than of any other portion of its history; nor is it difficult to explain this, for very few die in the early stage of the disease; and when the patient is cut off at a more advanced period, it is generally in consequence of the affection of some internal organ, which either absorbs all the attention of the practitioner, or it may be, that long before the fatal event the joints have become free from the disease, as happens in the great majority of cases of rheumatic fever where the heart has been so damaged as to prove after a time incompatible with life. Nor must I neglect to mention another circumstance—viz. that in cases which have ended in suppuration, the very fact of such termination is often assumed as *ipso facto* proving that the disease had not been rheumatism, but ordinary "disease of the joints."

I have never seen any form of rheumatism except the capsular in which suppuration has thus occurred; but of this I have seen several instances:—

A lady, about 55 years of age, of delicate consti-

tution (residing at Chelsea), became affected with the ordinary symptoms of capsular rheumatism, affecting principally the shoulders and hips. In about a week the right shoulder-joint became distended, and after a few days the articulation of the clavicle with the sternum was likewise swollen and fluctuating. The right hip next became the chief seat of pain; and it was thought that deep-seated fluctuation, apparently from distension of the capsular ligament, could be felt. Sir Benjamin Brodie saw the patient at this period, and agreed with me in regarding it as a severe case of capsular rheumatism. She died at the end of a month from the commencement of the attack, without any internal organ participating in the disease, but apparently exhausted by paroxysms of fever, attended by copious perspirations. No examination was allowed; but the impression produced upon my mind at the time was, that the inflammation had run so high as to give rise not merely to an increased secretion of synovia, but that purulent matter had been formed in the affected joints.

A man was admitted into St. George's Hospital, under my care, in 1835, affected with pain and swelling of the knees and hips. The pains next attacked the wrists and shoulders, the former of which were swollen from distension of the synovial membranes, and slightly red externally. The pain was

also severe and long-continued in the left shoulder. But the chief affection from the onset consisted of severe pain in the right hip-joint, with a considerable tense elastic fulness in the groin, apparently connected with the joint. The pain and swelling of the other parts subsided in the course of a few weeks, while that of the hip-joint continued. The patient lingered for several months; and on examining the body after death, matter was found in and around the joint, with ulceration of the cartilages, and destruction of the ligaments.

Now this I regard as a case of synovial rheumatism, in which, owing to the concentration of the action on one joint, its disorganization was produced. At its commencement no doubt was entertained, or could have arisen, as to the nature of the case, its history being that of common synovial rheumatism; but had the patient not been seen till the successive affections of the other joints had passed away, while that of the hip alone remained, the case might have been regarded merely as one of common disease of the hip-joint, unconnected with rheumatism.

A woman was brought into St. George's Hospital, who was stated to have had rheumatism of a very acute character, and was treated for that complaint by a medical practitioner at Kensington. She complained of pains in her limbs generally, but particularly in the right hand and left hip. The knuckles

were swollen, the tumefaction taking the shape of the joints. The first joint of the fore-finger was especially tumefied and red. She had been ill a month, and several joints had been affected in succession. She was admitted in a moribund state, and died next day. The affected knuckle contained a tea-spoonful of thin pus, with redness of the membrane round the edge of the cartilages. The left hip-joint had a thin layer of pus infiltrating the cellular membrane, external to the capsular ligament, and within it was filled with thin pus mixed with flakes: there was redness of the capsular ligament, but no ulceration of the cartilages.

George Coombs, ætat. 31, was admitted into St. George's Hospital on the 23d of November, 1836, at which time he had suffered for a month from pain in various joints. He had then, however, no pain remaining, except in the left knee, where it was still severe. There was no swelling or redness, and he could bend it without difficulty, but complained much when the limb was straightened. There was little general disturbance.

Nov. 30th.—Having exposed himself to cold, he had a rigor, followed by heat and copious acid sweating. To-day has pain in the limbs generally, but particularly in the knees and shoulders, accompanied by a good deal of fever.

By the 15th December he was much better, and

especially with respect to the affection of the left knee, for which he was originally admitted; but on the 19th he had a return of pain in both knees, particularly the right, the synovial membrane of which was distended.

On the 24th the left ankle was painful and swollen, and also the left elbow, which was red externally. His pulse was 116, and his countenance anxious.

26th.—Knuckle of left middle finger swollen, with perceptible distension of the joint, and redness of the skin. The copious acid perspirations continue.

31st.—The swelling of finger and elbow very much diminished, and his chief complaint now is of the right knee, which continues much swollen, the tumefaction being dependent on distension of the capsular ligament, accompanied by fluctuation. The limb is retained habitually in a half-bent position.

In this state he continued, with little change, till the 12th of January, when he died.

The body was examined next day. The right knee was found to contain nearly half a pint of thin purulent matter, with some flocculi. The cartilages were entire, and of healthy appearance; but the synovial membrane was distended, pushed up beneath the quadriceps muscle, red, and thickened. The metacarpal joint of the finger which had suffered was next examined. The flexor tendon was softened, and seemed sodden, being deprived of its silvery lustre; the articular surfaces red, roughened, and

smeared with a thin layer of pus. The left ankle, which seemed to have been third in the degree of suffering, was examined, but presented no morbid appearances beyond a little redness. Neither the pericardium nor the heart presented any morbid change, unless a slight, apparently old, thickening of the mitral valves. There were between two and three ounces of fluid in the ventricles of the brain.

Now it appears to me impossible to separate such cases as the preceding from rheumatism, unless we admit change of structure in the part affected to be in itself sufficient proof that the disease had been something else—a mode of reasoning both unphilosophical, and calculated to establish an embarrassing, and I believe imaginary distinction, between those cases in which disorganization is, and those in which it is not, the result of affections of the joints commonly regarded as rheumatism.

Again, abundant evidence will be found in the writings of those who have attended most minutely to the changes of structure which the joints undergo, to convince us that rheumatism which becomes fixed in a part may there give rise to palpable changes of structure. The fourth case, which occurs in Sir Benjamin Brodie's work on the Joints, is, I think, conclusive on the subject :—

"Henry Payne, 30 years of age, was admitted

into St. George's Hospital, under the care of Mr. Hawkins, on the 7th of October, 1829.

He had suffered formerly from repeated attacks of rheumatism.

About twelve weeks ago, after exposure to damp and cold, he was seized with inflammation in nearly all his joints. In the course of a few days the disease in the other joints had abated; but the right knee became more painful and swollen. At the time of his admission, this knee was tender, painful, and much distended with fluid, and there was a good deal of febrile excitement of the system.

Blood was taken from the neighbourhood of the knee by cupping; and this was followed by the application of blisters. The *vinum colchici*, and afterwards calomel, combined with opium, were administered internally. Under this treatment the pain and swelling of the knee subsided.

On the 27th of October he was attacked with severe inflammation of the fauces and larynx; which, however, soon yielded to the remedies employed.

On the 31st he complained of severe pain in the right side, with great difficulty of breathing; and on the 3d of November he died.

On examining the body after death, the pleuræ were found inflamed, and incrusted with lymph, and serum had been effused into that of the right side. The lungs, also, were inflamed, and some portions of them were in a state of gangrene. The heart was

affected with hypertrophy, and the pericardium was inflamed, with flakes of lymph adhering to it. The synovial membrane of the right knee was full of a dark-coloured fluid; not purulent, but having the appearance of a thick synovia, tinged with blood. The synovial membrane was every where of a red colour, as if stained by this secretion, and the cartilages of the joint had the appearance of having been stained in the same manner. There were some small extravasations of blood in the cellular membrane external to the joint."

But I find also unequivocal evidence of the same general nature in the works of some of the continental writers. Thus, so long ago as the time of Stoll, the occasional termination of rheumatism in suppuration of the joints seems to have been known. Indeed, he expressly says, "in some patients these cases of rheumatism, after having caused great suffering, gave rise to suppuration:" unfortunately, he does not inform us as to whether he had examined the joints after death, but adds, a little further on, "I treated two young girls, one of whom had the hand, and the other the foot, affected with this kind of rheumatism. All my efforts, though they were varied and long-continued, were unable to overcome the obstinate character of the malady*."

M. Bouillaud, who strongly advocates the idea of

* Practice of Medicine, vol. iii.

rheumatism being analogous in its effects to other inflammations, states that he has seen three cases of the disease ending in suppuration of the joints; but in these there existed inflammation of some of the veins; and as we know that phlebitis is frequently productive of deposits of matter in the joints and elsewhere, I am not disposed to attach so much importance to his observations as to those of some others, particularly of M. Chomel. This distinguished physician maintains that rheumatism is not a true inflammation, and consequently his facts are not open to the suspicion of any bias in favour of the doctrine for which I argue. Now, in his Essay on Rheumatism, he relates the case of a patient who died at La Charité: either shoulder had been in succession the seat of acute pain, with tumefaction; and on examination after death a purulent effusion was found in the affected joints. But that the previous history of this case had been that of rheumatism is proved by this—that Chomel asks, in reference to it, whether it can be that *rheumatism* should have its seat in the synovial membranes? He then goes on to state, that in two other patients whom he had seen at the Hôtel-Dieu, several joints of different limbs became painful and swollen, so that they could not perform their movements. The patients died, when increased redness of the synovial membranes, with effusion of pus, was found in the articulations alluded to. The inference which he

deduces is not, as we might have expected, that rheumatism may produce these organic changes, but that inflammation of the synovial membranes may very much resemble that disease. This, and numerous other passages in the works of modern French writers, show that they are not aware of the great distinction between synovial and common fibrous rheumatism, their reasoning being almost exclusively applicable to the latter.

In the Journal Hebdomadaire for April, 1834, is the following case:—Thérèse Vellamé, aged 27, a cook, in the eighth month of her pregnancy, was exposed to wet and to the vicissitudes of the atmosphere, and experienced on the 27th of January an attack of pain in the loins, with shivering. The knees, feet, and wrists, were successively affected, and she was admitted on the 1st of February, under the care of M. Piorry. There was then swelling, with heat and redness of almost all the joints, and *hydrarthrosis* of the left knee. She was ordered to be bled on several successive days, but two venesections only (through mistake or negligence) were practised, and those with an interval of several days. The patient remained, with little change, till the 6th of March, when she was brought to bed of a dead child; she herself expired on the 9th, symptoms of peritonitis having previously declared themselves. The left knee presented externally a marked degree of swelling. On opening the joint, a considerable quantity

of pus was evacuated. The cartilages were softened, and the fibro-cartilages at some points destroyed. The synovial capsule was of a deep red colour, with lymph deposited on its surface. Both ankles presented analogous appearances, but in a less degree.

In referring to the four fatal cases I have myself seen, and in analysing the others which I have adduced, I find that in all the affection had apparently originated in the synovial membranes, evinced by pain of the joint, accompanied by a swelling, the shape (and, for the most part, the fluctuation also) of which showed it to depend upon effusion within the capsule; that at first the pains had been more or less erratic, implicating several joints simultaneously, or in rather rapid succession; but that either from the commencement some one or two articulations had suffered more than the rest, or that after a time the pain and swelling had become, as it were, fixed in certain joints, and continued there after the others had got well. As might be expected, the joints on which the force of the disease was thus concentrated were those in which the destructive effects of the inflammation were most conspicuous.

The phenomena here are strikingly different from those which occur in rheumatism affecting the ligamentous textures; for in this last, as we have seen, however considerable the external appearances of

inflammation, yet the joint internally may present on examination not a single trace by which its presence can be recognised.

It seems clear, from the considerations already offered, that the form of rheumatism which more especially attacks the synovial membranes has a greater tendency than the preceding to produce disorganization in the primary seat of the disease. This might, perhaps, be explained by the fact that the internal lining of the joints is, under ordinary circumstances, more prone to change of structure than the common ligamentous textures. There is, however, another important point to be taken into the account —namely, that the synovial form of rheumatism is more connected with a cachectic or other morbid condition of the general system. It conspicuously occurs in persons who are of feeble and debilitated constitution; or if it appear in the more robust, it is generally after some considerable and continued source of mental or bodily exhaustion. Thus it may supervene upon a long journey in cold weather, upon severe study, or acute distress; particularly when to these are superadded causes productive of ordinary rheumatism, such as sitting up during the night by a sick bed, or in the accomplishment of some trying intellectual task.

Again, the evidence of a morbid condition is sometimes yet more unequivocal, as where we see the

attack supervening upon, or alternating with, gonorrhœa—an event by no means very uncommon, and presenting one of the most obstinate forms of the disease. It is also met with in connexion with other venereal affections; but as this occurs almost exclusively where long-continued courses of mercury have been adopted, there is reason to suspect that the remedy is in this respect as much to blame as the syphilitic disease.

The first indication of this form of rheumatism generally consists in a dull aching and stiffness of certain joints, particularly those which are most superficial. After a time the pain becomes of a more acute or burning character, and the parts begin to swell, the enlargement presenting a model of the synovial or bursal cavity, into which the effusion has taken place: the suffering is increased either by stretching the parts much, or by corrugating them, and hence a semi-flexed position of the joint is the one usually assumed in severe cases. Motion aggravates the pain, particularly after rest of some continuance, as in the morning, at which time there is often a great deal of stiffness about the parts; but in chronic cases this subsides after a little exercise, and the limb assumes more of its wonted suppleness.

In the most acute cases there is smart fever, and some redness about the joints; but much more usually there is no external discoloration, and little fever;

at least the fever is inconsiderable as compared to that which attends the form of rheumatism first described. When fever is present to a considerable extent, it generally presents the remittent type, with copious perspirations; and I have seen a pulverulent deposit on the skin, which admitted of being scraped off, in quantity minute indeed, but sufficient to admit of being tested, and which was found to consist of the lithate of soda. Where the fever runs rather high the tongue becomes loaded and the bowels constipated; but there is much less disposition to these states than in common rheumatic fever. Indeed, of the secretions, the perspiration and urine are those most uniformly affected, the latter being charged with the lithates, and sometimes producing a sense of scalding as it is voided. In one case, which lately occurred to me, this was attended with slight discharge from the urethra, although I have the strongest reason to be assured that there was no gonorrhœal affection. This phenomenon would seem to bring still more close the connexion between the urethra and synovial membranes.

The course of this disease is altogether considerably different from that of rheumatic fever; it more speedily becomes mitigated in severity when both are treated in the ordinary manner, or when both are left to the unaided efforts of nature. But it is rarely if ever cut short at once, and the subacute, or chronic condition, is much more enduring. In a first attack,

from three to six weeks may be stated to be the average duration of the illness, and in such case little or perhaps no perceptible damage may have been done to the affected joints. But it is very apt to recur, and with each relapse its obstinacy seems to increase; in fact, the inflammation acting repeatedly on textures already diseased, at length may be said never to be wholly absent, giving rise to permanent swelling and stiffness about the joints, constituting the "nodosities" already described. Sometimes, after years of suffering, a truce is at length entered into, and the patient enjoys a long respite, without our art having any apparent share in the favourable change.

When the superficial joints are affected with this form of rheumatism, it is generally very easily recognised; but when it attacks those which are deep-seated and much covered, considerable difficulty may exist: for instance, with respect to the hip-joint. In such cases, however, there is usually some external part implicated, which gives us a clue to the mystery. Thus if the great toe or knee, or but a single knuckle, be simultaneously affected, we may infer that the nature of the deep and concealed disease is the same as that of the superficial. But sometimes the *joints* are all free, and some deep-seated *bursa* is alone affected. If an individual who has been subject to this form of rheumatism, (or even without this, if he has been exposed to causes likely to have pro-

duced it,) should complain of pain accompanied by stiffness, and much aggravated by motion, with some perceptible fulness, but without heat or much constitutional disturbance, such case will frequently be found to depend upon rheumatic inflammation, with effusion into some deep-seated bursa; at least, such case will frequently get well under the use of those remedies which are of most avail in less equivocal examples of synovial rheumatism.

CHAPTER IX.

PERICARDITIS VERY RARE IN CAPSULAR RHEUMATISM—METASTASIS TO THE MEMBRANES OF THE CHEST OR HEAD—CASES IN ILLUSTRATION — THE EYE SOMETIMES, THOUGH BUT RARELY, AFFECTED—VARIOUS OTHER COMPLICATIONS WHICH ARE DESCRIBED IN BOOKS EXTREMELY RARE.

It is a remarkable fact with respect to this form of rheumatism—the capsular—that it has very little disposition to implicate the heart. Of a large number of cases of rheumatic pericarditis which have fallen under my observation, only two have occurred where the synovial membranes had been the seat of the disease, while even in these the connexion between the external and internal affections was by no means unequivocally marked. On the other hand, in five cases of synovial rheumatism wherein patients have died from the transference of the inflammation to internal parts, the heart has manifested neither the slightest symptom of disease during life, nor the least appearance of morbid change on examination after death. But I do not wish to draw from this any other conclusion than that such complication must be com-

paratively rare; and this inference, I may add, is strengthened by a reference to recorded cases; for where they are related with sufficient distinctness to enable us to determine the nature of the previous rheumatism, it will be found almost invariably that if the heart became involved in the disease, the synovial membranes had not been the seat of the primary attack.

Indeed, there can be no doubt that, on the great scale, there is a striking difference between the affections of internal organs in rheumatic fever, and in cases of capsular rheumatism, even in its acutest varieties. While the former implicates both the external and internal membranes of the heart by *extension*, and this in a very large number of cases, the latter (where it involves an internal part,) becomes transferred to the pleura, or to the membranes of the brain, by *metastasis*, and this in but a small proportion of instances. Nor are the immediate results of such internal inflammations less remarkable; for while very few, if properly treated, die during the first onset of rheumatism of the heart, the mortality holds a very high ratio where the synovial inflammation becomes transferred to the serous membranes either of the head or chest.

There are too many instances on record, to admit of the fact being questioned, that synovial rheumatism is occasionally associated with an inflammatory affection of the membranes of the brain; but there

are various circumstances connected with such occurrence which require particular attention. So far as my experience goes, this combination is much less apt to attend the early than the advanced stage of this form of rheumatism; whereas I think the heart affection is most frequent at the early period of rheumatic fever. Again, the cases which I have seen have not been when the disease has been erratic as regards the limbs, but rather when it has fixed itself in a few joints, or perhaps in one particular joint: such joint suffers severely, and is generally considerably swollen, from effusion within it. After having been for several weeks, or even months, nearly stationary, the swelling may diminish without any obvious cause; the patient having either ceased to take any remedies, or continuing to use those which had previously appeared to relieve perhaps, but not to produce a very striking effect upon the local disease. Wherever, under such circumstances, any (even the slightest) head symptom presents itself, it must be viewed with the greatest suspicion.

Sometimes the affection of the brain is manifested by pain in the head, which is at one time acute, at another dull—at one time persistent, and at another periodic, or at least paroxysmal, with almost complete remissions. Where there is pain in the head, however slight, attention is generally directed to the part; but occasionally there is no pain whatever, even although the disease has made considerable advances.

The following case may serve to illustrate the peculiarities of one form of this disease :—

A gentleman of literary habits, in the 37th year of his age, had suffered for above two months from pain, with swelling and fluctuation, of several joints, particularly the knees. The right knee was more especially complained of, and there was considerable effusion into the joint, evinced by a soft fluctuating projection on either side of the patella and across the lower part of the thigh, just above the knee. He took each night acetic extract of colchicum, in doses of gr. iij. and acetate of morphia, which last was increased gradually from $\frac{1}{4}$ to $\frac{1}{2}$ a grain; but without any effect in relieving the affected part. About the end of May, 1837, he complained of his memory being impaired, so that he had great difficulty in remembering words; but he was able to go out in an open carriage, and took a short airing, on Sunday, June 2d.

Next day I found him in bed, unable to answer questions otherwise than by the monosyllables "Yes," and "No." He expressed his mortification at this inability to speak, by gestures, and when asked if he had any pain or giddiness about the head, answered "*No ;*" and shook his head in such manner as to show that he perfectly understood what was said to him. His pulse was 78, and soft; his tongue clean. No complaint was made of the knee,

but on examining it I found the swelling almost entirely gone; indeed all fluctuation had disappeared, and there remained only some puffiness about the parts. He was freely purged, and a mustard poultice applied to the knee.

4th.—The same symptoms continued without perceptible change. Twelve leeches were applied to the temples, and the purging repeated.

5th.—In the early part of the day he seemed better; recollecting his sister's name, which he had previously forgotten. Late at night was seized with a fit of screaming, accompanied by strabismus affecting the right eye, and followed by frequent moaning.

Leeches to forehead, and gr. ii. of calomel every three hours. A blister to the back of the neck.

6th.—Strabismus gone, but mouth perceptibly, though slightly, drawn to right side, with much subsultus tendinum, and frequent sighing. Answers questions which require only monosyllables distinctly; says "*No*," when he is asked if he has pain in the head, and "*Yes*," when asked if he has any giddiness. Pulse 80, with some sharpness.

Twelve leeches to temples; calomel, gr. iii. every three hours; strong mercurial ointment to be rubbed in very freely.

7th.—Very little change. Calomel omitted after

the seventh dose, in consequence of purging. Mercurial frictions continued every two hours.

8th.—Much more sensible, and expression improved. Urine, which has been rather scanty, has become more abundant. Pulse 78. No mercurial fœtor, but a perceptible red line on the gums.

9th.—Continues apparently to improve; gums decidedly injected, but there is no mercurial fœtor. Takes beef-tea plentifully. Shows by his manner that he recognizes those about him, but cannot name even his most familiar friends.

Towards evening he began to sink. Frequent starting, and constant deep sighing; pulse became diminished in power, while it rose in frequency to 100. These symptoms continued till the evening of the 10th, when he expired.

Autopsy.—The convolutions of the brain were flatter than usual; the arachnoid was injected, and there was a slight appearance of effusion. The ventricles contained from oz. iss. to oz. ij. of clear limpid serum, and each corpus striatum had the appearance of being smeared over with a thin layer like cream; but this could not be wiped off, and apparently depended on thickening and opacity of the lining membrane. The convolutions of the left fissura Sylvii were adherent, from inflammation of the interposed membrane, and the substance of the brain on either side of the fissure was of a yellowish colour,

with patches like minute points of extravasation. The heart and other thoracic viscera were perfectly healthy. In the right knee, which had been the chief seat of the rheumatism, the membrane was thickened, rugose, and red all round, close up to the cartilages. The membrane had been pushed upwards, so as to increase the extent of the cavity, but no longer contained any preternatural quantity of synovia*.

Now this is a case to which I have seen several more or less analogous, and evidently consisted in a slow and treacherous inflammation about the brain, producing fatal effects without exciting the general system into any of that sympathy which usually attends the progress of mortal diseases.

In another form of this metastasis the symptoms are more marked, especially as regards the occurrence of pain in the head, by which the seat of attack is clearly pointed out. A case of this kind occurred some time ago at St. George's Hospital, under the care of Dr. Seymour. A man had long laboured under synovial rheumatism, and there was great permanent distension of the capsules. One day, the knees, which had been greatly swollen, were observed to be flaccid—reduced, in fact, by about one-half. He complained at the same time of pain in the head, became paralysed on one side, and expired

* This case was attended by Dr. Pereira, Dr. Clendinning, Dr. Hope, and myself.

in the space of thirty-six hours. On opening the body, a deposit of greenish-looking purulent matter was found smeared over the greater part of the surface of the left hemisphere, and there was considerable effusion into the ventricles. Here the disease had gone on silently up to a certain point, as there was not the slightest evidence of any increased action about the head till the paralysis came on.

In yet other cases of this affection, there is pain of the head of several days' duration, afterwards giving place to symptoms of pressure, very much in the manner we see in hydrocephalus. A very good illustration of this is contained in Sir B. Brodie's work on the Joints.

A lad, aged 13, had inflammation of one knee, with effusion into the joint; thickening of the synovial membrane resulted, and the enlargement of the joint continued for several months. At the end of this time the swelling became suddenly reduced, and this was simultaneously accompanied by the supervention of acute pain in the head. This returned several times periodically at night, and after a week entirely ceased, when he became affected with somnolency, strabismus, and partial blindness, in which state he died.

In almost every instance wherein the cerebral affection assumes the insidious form described in the first case,—the paralytic attack detailed in the second,

—or the form of hydrocephalus, as in the third, the attack proves fatal. But in some the disease more resembles common inflammation of the brain, admits of the ordinary active treatment, and more frequently than in the preceding instances also admits of a successful termination.

Another complication of this form of rheumatism is with pleurisy; and here, too, the internal inflammation depends upon a metastasis, the affection of the joints subsiding, or wholly ceasing, on the supervention of the thoracic disease. I have more than once witnessed this occurrence, and the phenomena were rather remarkable, having given rise to a copious sero-purulent effusion into the bag of the pleura. This form of metastasis is quite distinct from that which takes place to the pericardium in diffuse rheumatism. In this last the inflammation may, and frequently does, extend over the covering of the heart to the contiguous pleura: but in the cases of metastasis of synovial rheumatism to which I allude, the pericardium was free from any participation in the disease.

Dr. Copland has recorded a case in which rheumatism was combined with inflammation of the membranes of the spinal cord; but, as in the case alluded to, the rheumatism alternated with *chorea*, there is at least room to suspect that it was this last, rather than the rheumatism, which directed the disease to that portion of the nervous system.

Another part to which rheumatism occasionally

extends is the eye; and I mention this here, because I have never seen it except in connexion with the synovial form of the disease. Certainly it is not common for patients labouring under any form of rheumatism, whether acute or chronic, to become affected with ophthalmia while under treatment; and it appears by the best works on diseases of the eye, that the cases which have been called rheumatic ophthalmia are principally instances of inflammation of the sclerotic coat or conjunctiva, in persons who have had no other form of rheumatism. The application of cold and damp, which in one person produces rheumatism, in a second may produce cynanche, in a third bronchitis, in a fourth ophthalmia; and if the latter be called rheumatic, I see no reason why we should not also speak of rheumatic cynanche, rheumatic bronchitis, &c. In order to prove that any disease is of a specific character, and similar to another, we ought to be able to show, either that they occur together so frequently as to leave no reasonable doubt of their identity—which is the case in rheumatic fever and pericarditis — or that the sudden retrocession of the disease in the extremities is followed by the internal affection, as where synovial rheumatism is transferred to the brain; or, lastly, the internal affection, if it manifest itself first, ought to become mitigated, or to cease entirely, on the disease attacking the limbs—a phenomenon frequently witnessed in gout.

Now if these tests be applied to rheumatic ophthalmia, I have no hesitation in expressing my conviction that the number of cases in which it is met with will be prodigiously reduced; in fact, of the patients whom I have treated for different forms of rheumatism in St. George's Hospital, not quite so large a proportion as one in two hundred has had inflammation of the eye; and I observe that, in a table of 520 cases, given by Haygarth, the eye was only affected in two.

I would by no means be understood, however, as denying the existence of rheumatic, or rather perhaps of arthritic ophthalmia. All I maintain is, that the affection bears a very small proportion to the total number of cases, and that the term has been unwarrantably extended, by writers on ophthalmic surgery, to inflammations of the eye having no connexion of any kind with rheumatism except that of being produced by the same exciting cause, viz. cold.

We read in medical authors of various other parts becoming affected with rheumatism by metastasis. One would expect such affections to be more common, in connexion with this, than the other forms of the disease, because it bears a very strong affinity to gout; and gout is proverbial for its erratic propensities. At the same time I must remark, that I have been looking out for such examples during twenty years, and have never met with any unequivocal instance of the metastasis or extension of rheumatism

except those I have mentioned above. We have abundant derangement of function in the alimentary canal and kidneys, but as out of many hundred cases, I have not seen rheumatism, when unconnected with gout, transferred to the stomach or the bowels, the kidneys or the bladder, in the shape of inflammation, I think I am warranted in inferring that such cases are of very rare occurrence.

CHAPTER X.

DIFFERENCE BETWEEN THE TREATMENT REQUIRED IN THIS AND THE FORMER VARIETY OF RHEUMATISM—UTILITY OF LOCAL MEANS—COLCHICUM THE MOST IMPORTANT REMEDY—FORMS OF EXHIBITING IT, AND CAUTIONS REQUIRED—IODIDE OF POTASSIUM—ITS EFFICIENCY IN THE MORE ADVANCED STAGE—AFFECTIONS OF INTERNAL PARTS TO BE TREATED ON GENERAL PRINCIPLES.

THE treatment of capsular rheumatism differs essentially from that which is applicable to the form of the disease first described. General blood-letting, so useful in urgent cases of the former, is here rarely if ever required, while local depletion is often of the most essential service. The nature of the parts affected renders this practicable by leeches alone, except in very rare instances; but the relief which they afford in an acute attack is of the most marked description. In such a case, six or eight leeches to the foot, hand, or knee, according as one or other of these joints may be affected, relieves or removes the pain without nearly so great risk of its making its attack elsewhere, as there is in the form of rheu-

matism previously described. In many cases the leeching requires to be repeated ; and where the disease shows a disposition to become fixed in particular joints, the local depletion may require to be had recourse to several successive times, at intervals varying according to circumstances.

Tepid spirituous applications are frequently attended with the most soothing effects, and ought to be persevered in wherever they are grateful to the feelings of the patient; the test by which I am always guided in recommending their continuance or abandonment. In some, fomentation with the decoction of poppies answers better than the spirituous lotions, and in others the parts are easier when kept at a moderate temperature, but without any medicated application.

Internally, colchicum is the great remedy; and there are various modes in which it may be given. In the acute stage, the plan I have found to answer best is to give about a drachm of the vinum colchici in divided doses in the course of the twenty-four hours, combining the portion taken in the morning with a saline purgative draught, such as the common black dose. At the onset it is desirable to act pretty freely, but not violently, on the patient's bowels ; and where the senna and salts prove too active, a drachm of the sulphate of magnesia, and thirty minims of the colchicum wine, may be given, in any light aromatic infusion. Where the bowels are very irritable, as some-

times happens in this form of the disease, a scruple of magnesia may be substituted for the Epsom salts. Another form which frequently answers extremely well, is to prescribe a drachm of colchicum wine and half a drachm of magnesia in a mixture, of which the third part is to be taken three times a day.

Opium is by no means so conspicuously useful here as in the preceding variety of the disease. In capsular rheumatism, the colchicum generally acts as an anodyne; but if we find that it fails in this respect, recourse must then be had to opium, in doses from five to ten grains of the compound soap pill, or some of the other preparations, in corresponding doses.

In a large majority of cases, great mitigation of the patient's sufferings is produced by these means in the course of a few days; but this is a form of the disease which, as we have seen above, is very apt to pass into the chronic state, attended with more or less organic change in the affected parts. When the first acuteness of the attack has been subdued, the acetic extract of colchicum exercises a very kindly influence on the disease, and may be given in doses varying from gr. i. to gr. iii. at bed-time, combined with gr. $\frac{1}{4}$ of the acetate of morphia; or with five grains of Dover's powder. This plan generally requires to be combined with moderate purging, by means of rhubarb and magnesia, or some other gentle laxative, with an alkali. I have occasionally used the other preparations of colchicum, but the two

I have above mentioned have appeared to me to effect all that this remedy is capable of accomplishing.

There can be no doubt but that the colchicum is an agent of great power, and such as to require some caution in its administration; but it has always appeared to me that the presence of the disease in question has a counteracting influence, preventing the injurious consequences which might otherwise ensue; just as we see in many cases that the energies of the most powerful remedies are held under control by the state of the system—a familiar illustration of which is afforded by tetanus in respect to opium. However this may be, I have never seen any injury whatever done by colchicum in the doses above mentioned, unless persevered in under the following circumstances—1st, The cessation of the pain; 2d, a depressed state of the nervous system; 3d, the occurrence of purging; 4th, the disappearance of the lithates from the urine. This last, I believe, was first pointed out by Dr. Graves, and is an indication which it is of importance to keep in mind.

The pain, according to my experience, is generally relieved by colchicum, independently of its purging; but the bowels must be excited to a moderate extent by other medicines, to prevent accumulation, or if they act from the colchicum with any violence, the remedy must forthwith be discontinued.

In ordinary cases of this form of rheumatism, I think calomel ought to be avoided, except as an

occasional purgative where the biliary secretion is unhealthy; at least I have never seen benefit result from it when given in any other manner; and where the mercurial action has been unintentionally excited it has appeared to do harm.

When the acuteness of the attack has been subdued, and no farther improvement takes place from the colchicum, marked benefit frequently results from the Iodide of Potassium. According to my experience, this remedy acts most efficiently when some thickening has been left about the joints; and although I will not venture to say I have seen no advantage where such change of structure did not exist, yet I have so seldom witnessed decided effects where there was no thickening, that I have not been able to convince myself that in the scanty number of exceptions alluded to, the remedy and the recovery stood to each other in the relation of cause and effect. The iodide of potassium is the only form in which I have used this powerful agent in rheumatic cases, and, with the restrictions above mentioned, the results have been very satisfactory. But my experience differs greatly in one respect, from what I find stated by various authors—I mean, as to the quantity required. I believe that it is generally given in doses much larger than are necessary, and that various nervous symptoms of an alarming nature result from its abuse. If I may judge by my own experience, I should say, that all the good it is capable of affording,

is accomplished, in the great majority of cases, by two grains, three times a day, and that double that portion ought to be the maximum dose. I am quite aware that it is generally given in much larger quantity; but I repeat, that in rheumatism I have never seen it do good where the smaller doses above mentioned had failed, and I have more than once witnessed distressing effects from their incautious augmentation.

Where the iodide of potassium agrees, it very generally gives speedy relief, (I have known it do so within forty-eight hours), and the patient's state altogether is ameliorated, so that his appetite improves, and he gains flesh. Under these circumstances, the remedy may be persevered in for a considerable time as above directed, and this not only with perfect safety, but with unequivocal advantage.

When the disease has become entirely chronic, it is of great importance to attend to the general health, and light bitters, with a little potass or soda, are frequently of essential service; nay, in some cases of this kind, where the debility is considerable, even the decoction of cinchona may be given with great advantage.*

Some assistance, but certainly not so much as

* I think that in the case above supposed, and in almost all others where debility is the urgent symptom, that the cinchona is to be preferred to quina.

could be desired, may be derived from local applications in the chronic form of the disease ; one which I would particularly recommend is, pouring tepid or hot water upon the part. This combines fomentation with a certain degree of friction, and the temperature of the water, as well as the height from which it is allowed to fall, must be regulated by the feelings of the patient. Liniments and embrocations are generally useless, and if incautiously used are frequently injurious. When the thickening is quite in a chronic state, the ointment of hydriodate of potass very gently rubbed upon the parts, or painting them with tincture of iodine by means of a hair pencil, so as to produce desquamation, is sometimes of service.

If the disease fix on a particular joint, threatening to produce the local mischiefs such as occurred in some of the cases above detailed, the evil must be met with all the remedies employed in disorganization of joints from other causes.

With respect to the affections of the brain, or other internal parts in connexion with capsular rheumatism, I believe the safest practice is to treat them on general principles, dealing with them as we should with similar conditions arising from other causes. The most imminent danger is that of effusion, and the other results of inflammation in general. Experience has shown these to be best obviated by depletions and the mercurial action ; but in the cases we treat of, the strength of the patient is generally reduced by the

previous disease, and this renders it necessary to bleed with caution, so that in some cases local depletions only will be borne. Blistering ought never to be omitted, and is, perhaps, more serviceable than in common inflammation.

Where from this or other cause we have an internal organ suffering from that kind of inflammation which ends in the effusion of lymph, I believe mercury to be by far the most important remedy, more especially in the early stage of the disease, and I should regard every thing else as secondary to bringing the patient under its influence. Should the case, however, pass into a chronic form, and appear to be attended with the presence of serous effusion, the calomel may be advantageously combined with digitalis, and other diuretics.

CHAPTER XI.

MUSCULAR RHEUMATISM MORE FREQUENTLY CHRONIC THAN EITHER OF THE PRECEDING FORMS—DIFFERENT NAMES APPLIED ACCORDING TO THE PART AFFECTED—EFFECTS OF MOVEMENT—EXCITING CAUSES—COLD—MECHANICAL INJURIES—HOT AND COLD VARIETIES—ESTIMATE OF VARIOUS REMEDIES.

THERE can be no doubt but that either of the preceding forms of rheumatism may pass into a chronic condition, or that the joints may originally become affected in a minor degree, so as scarcely to amount to an acute attack. These mitigated kinds of rheumatism have already been alluded to in connexion with their corresponding severer degrees. But there is a form of the disease specifically different from either of the above, and to which the term chronic is very generally applied. Its most common seat is in the muscles moving some of the large joints, as the hip or shoulder; the loins, too, are often affected, and not unfrequently the neck, but it is comparatively rare to meet with it in the forearms, hands, legs, or feet.

This form of the disease consists, in the milder

cases, of a dull uneasiness in the part while at rest, which, however, becomes converted into an acute cutting pain when it is moved. Sometimes, indeed frequently, there is no discomfort except on calling certain muscles into action, and if this, from forgetfulness or other cause, be done abruptly, the suffering is often so acute as to make the patient cry out involuntarily.

Lumbago is a very characteristic form of muscular rheumatism. It occupies the loins, and is often aggravated to torture by any unguarded movement implicating the muscles of the part; but if the patient remain perfectly quiet, he is comparatively free from suffering. When very severe, he may be obliged to remain in bed, and very often is confined to the sofa. Even when he is able to walk about, he often does so in a semibent position, being unable to raise his body into a completely erect posture for some time after he has risen; nay, in some cases he cannot straighten himself at all.

Pain of exactly the same character not unfrequently attacks the muscles of one side of the neck, and the head is generally held awry to relieve the suffering part. Either of these may be brought on by sitting in a draught, or otherwise exposing the parts to cold, especially if combined with moisture.

Another very frequent seat of muscular rheumatism is the intercostal space, where it is difficult to say whether the muscular or fibrous tissues are involved; and indeed the pain on inspiration is often as acute

as the stitch of pleurisy. From this, however, it is easily distingnished by the absence of pain, and the complete relief afforded by fixing the ribs, and breathing with the abdominal muscles.

I have also more than once seen the same kind of affection in the abdominal muscles, the pain being completely controlled by putting a roller tightly round the body, or otherwise preventing the muscles from acting.*

In muscular rheumatism motion generally gives pain during either day or night; but sometimes, after a certain degree of stiffness experienced in the morning has worn off, no further inconvenience is felt until the patient be again in bed. This form of the disease is not necessarily attended with any febrile disturbance; and if this does occur, it is but slight, and generally limited to the night, wholly disappearing during the day. The effect of heat differs in different cases. A certain degree of warmth is absolutely necessary for the comfort of the patient, as evinced by the effect of suitable clothing; but it is equally certain that the pains are generally much aggravated at night; and this has been attributed to the warmth of bed. I am inclined to think, however, that here, as in many other cases, there is a kind of diurnal revolution in the disease, and that the night season is that during

* I have before alluded (pages 19 and 20) to rheumatism of the intercostal spaces and abdominal parietes, in connexion with the fibrous variety of the disease.

which this, like the other forms of rheumatism, is most developed, independently of the mere increase of temperature. I have known muscular rheumatism become distinctly aggravated at night when the parties did not go to bed, and where there was no change of temperature to account for it.

In another class of cases, comparatively rare, the pain is unequivocally relieved by warmth, and increased by lowering the temperature. This has sometimes been called "cold" rheumatism; and it is of importance to attend to the circumstance, as it indicates the expediency of adopting the more stimulating class of remedies.

Muscular rheumatism often proves very obstinate; sometimes, indeed, although severe for the time, it disappears in a few days, but much more frequently, if neglected, it lingers on for several weeks or months, and occasionally even for years. When it has been fixed in a part for a considerable time, this is apt to waste, but whether from any particular influence of the disease, or on the general principle that patients learn to avoid moving parts which give them pain, and that muscles so disused progressively become attenuated, I am unable to say. I am not aware of muscular rheumatism leading to any other change of structure beyond the negative one just alluded to.

Cold, especially when combined with moisture, is the most common cause of this as of the other forms of the disease. Indeed, patients who are subject to

any of the varieties of rheumatism, often become susceptible to a most distressing degree, and can accurately announce changes in the atmosphere by attention to their sensations. Some such persons know perfectly, before their shutters are opened in the morning, whether the day be wet or dry, and can even tell from what quarter the wind blows.

Muscular rheumatism may also arise from various causes, which probably never produce the other forms of the disease. I allude to mechanical injuries of muscles, such as take place in violent strains and dislocations, or during parturition, which frequently leave the parts, for a considerable time afterwards, subject, on the slightest exposure to cold,—to attacks of a nature so much resembling rheumatism, that I know not how to distinguish between them. Perhaps the muscles are weakened for the time by the injury they have sustained, and thus yield to causes of rheumatism which they had previously resisted.

In those cases where the pains are decidedly aggravated by heat, the disease ought to be treated in the first instance on the same principles as in the more acute disease, though with less activity in the application of the remedies; and this especially holds good with respect to general blood-letting, which I have never known to be required. Nevertheless, local depletion is sometimes of most essential service—as cupping to the loins in lumbago, or leeches to the neck when that part is affected with the "crick."

Purgatives are very frequently of great service in the different forms of muscular rheumatism, more particularly in lumbago, and as a general rule ought to precede the use of other remedies. The best plan, where there is nothing to contra-indicate its adoption, is to give from three to four grains of calomel at night, followed by a black dose next morning, and to repeat this once or twice during the first week ; after which it is sufficient to regulate the action of the bowels, and to give rather a brisk purgative about once a week.

But in the kind of rheumatism to which I now refer, where it has not been preceded by the acute stage, and where the muscles are chiefly affected, remedies of the warm or stimulating kind are decidedly most useful. Among these, none has appeared to me to be so frequently efficacious as the ammoniated tincture of Guaiacum. Half a drachm is a sufficient dose with which to begin ; but most persons bear—and indeed require—a drachm, three times a day, and with some it is necessary to increase the dose to two drachms or more. The most common sensible effect is that of purging the bowels, and where this is the case to any great extent the dose must be either diminished or discontinued. In most patients, however, it may be so managed as to regulate the alvine evacuations ; and the tendency to diarrhœa may be prevented without inconvenience, by means of opium, which, in doses of about a grain each night may assist materially in the curative process. There are two other

forms in which this remedy has been frequently used in rheumatism, namely, the mistura guaiaci, and the compound familiarly called the "Chelsea pensioner." The first I think less efficient in this form of the disease than the ammoniated tincture; the latter (composed of guaiac, rhubarb, cream of tartar, sulphur, and nutmeg,) may be substituted with advantage for the tincture in those cases which prove very obstinate and lingering. The general effects which the remedy produces in any form which agrees with the patient, and which is likely to prove serviceable, are an agreeable sense of warmth in the stomach, followed by moderate perspiration, or where the surface is kept cool, by increased action of the kidneys. In full doses it sometimes produces an eruption on the skin like urticaria; but I have never seen any serious inconvenience result from this.

Numerous other agents, more or less analogous to guaiacum, are also frequently employed, and some of them with decided advantage. Thus, the oils of Turpentine and Cajeput; the balsams of Copaiva and Peru; or the more common domestic articles of a hot and pungent nature, such as horse-radish, mustard, and garlick, have all at different times been recommended. Of these, the terebinthinate medicines—I mean more particularly the common oil of turpentine—have appeared to me to be the best. It may be given in doses of from half a drachm to two drachms, two or three times a day, and answers best when in quantity not sufficiently large to purge.

The cajeput oil is another agent which acts in a very similar manner, but requires to be given in doses considerably smaller—as from five to fifteen drops.

In the acute forms of rheumatism, which we have previously considered, probably no one would think of having recourse to the warm bath, in their early stage, nor has any benefit resulted from this remedy in any of the cases of the sub-acute form in which I have seen it used. But in the muscular form of the disease, where guaiacum and analogous medicines afford relief, the warm bath sometimes becomes a very powerful adjuvant, even from the commencement of the attack. Of the various modifications of this remedy, the application of vapour seems to me to be most efficacious, and has the advantage of being applicable without removing the patient from bed. Where this plan is adopted, the sheets ought to be removed, and only blankets or flannel be suffered to come in contact with the skin. The object is to establish rather a free perspiration, and where this is accomplished, it must be allowed to subside very gradually. It is a good plan in such cases to follow up the bath by means of pretty brisk dry friction to the parts principally affected. Stimulating embrocations, too, or the local application of the *douche,* are frequently of much service in this form of the disease, and ought always to be tried in obstinate cases.

Where the patient has the fortitude to practise

it, exercising the affected part is frequently of great service; nay, even taking general exercise, so as to procure free perspiration as well as movement of the affected parts, is sometimes essentially beneficial.

Another expedient which has been adopted occasionally, though in this country the practice has never become at all general, is the acupuncture. I believe this to be the only form of rheumatism in which it is ever of service, and even here it is an uncertain remedy. I have not used it often; but in some of the cases in which I have tried it, the relief has been great and immediate, while in others, not apparently different, no benefit has accrued. I have only tried it in rheumatism affecting fleshy parts, and the plan adopted has been to insinuate from one to three or four needles (according to the extent occupied by the rheumatism) into the affected parts, suffering them to remain *in sitû* for a period varying from five minutes to about half an hour. Where no degree of relief has followed the first trial, I have never seen a second of any use.

Electricity is frequently recommended in muscular rheumatism. Some years ago I used it occasionally, and saw it used pretty extensively by others at the Westminster Dispensary; but the inferences I drew from such experience were not in its favour.

CHAPTER XII.

WHAT IS TO BE UNDERSTOOD BY THE TERM NEURALGIC RHEUMATISM—THE LOWER EXTREMITIES AND FACE ITS PRINCIPAL SEATS—THE DISEASE TO BE TREATED AT FIRST ON GENERAL PRINCIPLES—FAILING THESE, RECOURSE TO BE HAD TO CERTAIN ANODYNES.

I WOULD apply the term neuralgic rheumatism to certain painful affections following the course of various nerves, and brought on by exposure to cold. The identity of these, however, with genuine rheumatism is more doubtful than with regard to any of the cases previously described. But I have so frequently seen this form follow the same causes, yield to the same remedies, and alternate with attacks more particularly of the arthritic rheumatism, that I cannot but regard them as of the same family.

By far the best illustration and most common form of the disease is afforded by sciatica. This consists in pain of a peculiar character, which begins at the loins, and follows the course of the great sciatic nerve. As I have just said, it is most commonly produced by causes similar to those which give rise to the more unequivocal forms of rheumatism, namely, cold,

combined with moisture, and applied when the body has been previously heated. The attack generally commences in the loins, affecting one side more than the other, and thence extending down the corresponding limb, occasionally reaches even to the foot. It occupies the posterior part of the limb, and sometimes follows very accurately the course and distribution of the nerve. The suffering is often very acute, and, like other forms of rheumatism, is most urgent at night, but it seldom becomes so distinctly periodical as the more unequivocally neuralgic affections usually are.

We sometimes meet with this variety of the disease in the face, particularly in the cheek, and this occasionally alternates with the sciatica. There is usually more or less numbness accompanying it, and the pain is aggravated by pressure in the course of the nerve, or by movement of the part. At the onset, the disease is often accompanied by some acceleration of the pulse, and foulness of the tongue; but neither of these symptoms prevails to the same extent as in the acute forms of rheumatism already described.

The duration of an attack of this kind varies very much ; sometimes, under active treatment early employed, the disease is overcome in the course of a few days ; at others, the nervous symptoms become more marked, and resist the various remedies usually prescribed, for weeks or even months together.

At the commencement of the attack, and indeed at any period of the malady, if the reaction has not been previously reduced, it is advisable to take blood from the loins by cupping. This frequently gives great relief, and in robust and plethoric persons may require to be repeated more than once. At a later period, blistering over the loins and along the course of the nerve is to be had recourse to, and assiduously persevered in. While the disease presents any of the characters of acute rheumatism, purgatives must be used in the manner formerly described; and by these various means jointly, we shall frequently succeed in arresting the disease, while the cure is completed by calling opium to our assistance in full and free doses, administered at night.

Should the attack pass into a chronic form, benefit will often be derived from the ammoniated tincture of guaiacum, pushed to pretty full doses, in the manner recommended in a previous chapter.

If, notwithstanding these expedients, the disease continue, the neuralgic character usually becomes more and more conspicuous, and then the best chance of relief is afforded by certain anodynes not generally used or useful in ordinary rheumatic affections; while those which are so conspicuously beneficial in ordinary rheumatism, viz. opium and its salts, are nearly or wholly inefficient.

Stramonium, aconite, and veratria, are the remedies from which I have seen most benefit obtained in this

class of complaints. Of Stramonium, the only preparation I have used is the extract made from the seeds, beginning with the fourth part of a grain twice or three times a day, and gradually increasing the dose to two grains. The smallest quantity from which I have ever seen marked effects is gr. $\frac{1}{2}$; and gr. ii. three times a day, is the largest dose I have ever given.

The Stramonium is very uncertain in its effects, and has not succeeded in my hands so well as Dr. Marcet's account of it had led me to expect; nevertheless, in some of those painful affections of the limbs, (particularly the lower extremities,) which seem intermediate between neuralgia and rheumatism, or compounded of both, the extract of stramonium does sometimes give great relief. Where this happy result may be expected, some mitigation of suffering takes place within a day or two, and from moderate doses, as gr. i. ter die. It may be necessary to increase this after a time; but where no benefit has resulted from the quantity above mentioned, I have not been fortunate enough to succeed with larger doses.

Of the Aconite, the only preparations I have used are the extract and tincture; the latter has appeared to me to be by far the more trustworthy, the extract varying greatly in strength. Five minims, three times a day, of the tincture made from the root, is the quantity with which I have usually commenced; and

I have seen such decided effects from this small dose, that I would not advise any one to venture upon a larger one at first. Twelve drops, three times a day, is the largest quantity I have given. The most remarkable effect which results from it is numbness of some part, particularly in the seat of the previous pain; and whenever this occurs, the medicine ought for the time to be discontinued. I have thus left it off, and resumed its use, several successive times, with a progressively diminishing disease. This, more perhaps than the other analogous remedies, is entitled to a trial externally, which is best done by applying the tincture to the seat of pain with a hair pencil; but I think its advantages in this way have been overrated.

Dr. Lombard, who is physician to the Civil and Military Hospital at Geneva, states, in a recent memoir on rheumatism, that he has used the extract of aconite with great success, even in acute rheumatism of the joints; but the doses in which he gives it (gr. ii. every two hours, and occasionally dr. iss. in the day,) clearly shows that he refers to something very different from the extract of aconite made in this country.

The trials I have made of Veratria have led me to regard it as, in general, more likely to give relief the more the case has of the nervous character, and the less of the rheumatic. In my hands, indeed, it has proved a very uncertain remedy, having often failed altogether, but in a few instances succeeding where

all other means previously tried had proved unavailing. The form I have chiefly used is the tincture, in doses of five minims *ter die*, gradually increased to thirty, or of the veratria itself one-sixth of a grain, in the form of pill, three times a day, gradually increasing the dose to half a grain. The occurrence of the slightest degree of numbness or tingling I have always regarded as requiring its immediate discontinuance, resuming it again, however, if any improvement remained on the subsidence of these symptoms. In my own limited experience its internal has been more useful than its external administration.

Among the anodyne remedies applicable to such cases, the Belladonna may be mentioned; but I would limit the use of it to the external application, in the form of plaister, over the seat of the pain.

CHAPTER XIII.

PERIOSTEAL RHEUMATISM—OCCURRENCE OF NODES—REMEDIES TO BE USED.

MANY seem to regard almost all cases of node as of syphilitic or mercurial origin; but I have seen numerous instances in which I believe, and some in which I am quite satisfied, that neither of these causes had been in operation. What I have looked upon as rheumatism of the periosteum, has been, when, after exposure to cold, some part where there is a bone beneath but thinly covered with integument, becomes painful and tender, with some degree of puffiness. It may occur on the cranium or across the bridge of the nose, on the clavicles or sternum, more especially the latter, and on the extremities, particularly the tibia and ulna.

In this form it may last only for a few days, speedily yielding to proper remedies. But a much more troublesome and enduring form of the disease is that in which the affection passes into a chronic state, and is attended with one or more firm elevations on some of the superficial bones above men-

tioned, particularly those of the extremities. Such nodes vary in length from half an inch to several inches. They are often so prominent as to be quite perceptible to the eye, as well as to the fingers on running them along the part: the skin over them is very rarely discoloured, but they are tender to the touch, and, like most other forms of rheumatism, they are most painful at night. This variety of the disease is chiefly met with in persons of debilitated frame, and having a cachectic state of the system—circumstances which have, no doubt, contributed to their being somewhat too unhesitatingly attributed to other causes than rheumatism. I have met with the disease, however, in some whose constitutions evinced none of the circumstances above alluded to, and where the whole history of the cases left no doubt on my mind of their being rheumatic.

The treatment of this form of rheumatism is generally by no means difficult, though sometimes tedious. The acute cases, indeed, yield speedily enough when actively dealt with; but in the chronic form it is otherwise. In the former, leeches applied locally, with calomel and opium given internally, and followed by rather brisk purging, are sufficient under all ordinary circumstances to arrest the disease.

When, however, the case has passed into the chronic state, the iodide of potassium, in doses of from two to four grains, twice or three times a

day, very seldom fails to give speedy relief, and is generally sufficient to bring the case to a favourable termination without the assistance of any other remedy. Where it falls short of this, the cure may often be completed by sarsaparilla, and sometimes the two remedies in question require to be alternated. Very often the iodide removes the swelling and pain in the course of a few days; but where it does not, then this latter symptom must be controlled by means of opium. Purging is not necessary in the chronic form of the disease, but the bowels, if disposed to constipation, require the assistance of gentle laxatives.

Blisters over the thickened periosteum are frequently of considerable service; and in obstinate cases farther relief is sometimes obtained by painting the parts with tincture of iodine, in the manner already described.

In this form of the disease, accompanied as it so often is with a cachectic state of the general system, the warm bath is occasionally of considerable service, and is generally very grateful to the patient.

CHAPTER XIV.

TABLES AND INFERENCES DRAWN FROM THREE HUNDRED AND EIGHTY-SEVEN CASES OF FIBROUS, CAPSULAR, AND MUSCULAR RHEUMATISM, AND FROM FIFTY-TWO CASES OF RHEUMATIC PERICARDITIS.—CONCLUDING REMARKS.

I HAVE thought that it might not be without interest to illustrate the relative frequency and duration of the various kinds of rheumatism by tabular views and numerical statements, deduced from the cases I had treated in St. George's Hospital. These I now present to the reader, who will probably attach more importance to them when I inform him that the journals whence they are taken were not kept by me, but by clinical clerks, who had no particular views or objects to support, and who, therefore, merely recorded what was passing before them: besides which, the number of gentlemen successively employed (exceeding thirty) would effectually prevent the risk of any bias from undue uniformity of opinion.

Another circumstance connected with these tables which it may be proper to state is, that I published a set containing analogous calculations some years

ago, and that on referring to the paper in question I find all the relative proportions between the various classes of cases, and all the general inferences to be deduced from them, so entirely alike as require little more than transcription.

TABLE SHOWING THE AGE AND SEX OF THOSE AFFECTED WITH RHEUMATIC FEVER.

AGES.	MALES.	FEMALES.	TOTAL.
10 to 15	4	4	8
15 — 20	23	25	48
20 — 25	29	17	46
25 — 30	25	17	42
30 — 35	18	9	27
35 — 40	9	8	27
45 — 50	3	0	3
50 — 55	3	4	7
55 — 60	1	0	1
	No. of Males. 137	No. of Females. 89	Total. 226

From the preceding table it would appear that in both sexes from 15 to 30 is the period of life most obnoxious to rheumatic fever; 136 out of 226 cases having occurred within the period specified. The tendency to the disease is much diminished after 40, and after 50 it is comparatively rare.

PERIODS DURING WHICH THE CASES OF ACUTE RHEUMATISM WERE UNDER TREATMENT.

DISCHARGED CURED.	RELIEVED.	DEAD, OF RHEUMATIC PERICARDITIS IN ITS ACUTE FORM.
In 1 week 15		3
10 days, 8		
12 — 9		
14 — 28		
In 2 weeks ... 45		
— 3 — ... 50	4	
— 4 — ... 38	5	
— 5 — ... 18	0	
— 6 — ... 24	5	
— 7 — ... 4	2	
— 8 — ... 6	1	
— 10 — ... 2	0	
— 12 — ... 2	0	
— 16 — ... 2	0	
206	17	3

It thus appears that of the 206 cases of rheumatic fever, 148 were discharged cured within a month: and when it is borne in mind that it was a rule rigidly enforced not to send out patients who have had acute rheumatism as soon as they cease to com-

plain of pain, we may safely assert that the number above specified was cured within three weeks—110 within a fortnight, and 60 within eight days. In a small number, perhaps one-eighth of the whole, the disease was absolutely cut short at once within two, three, or four days, and in five or six cases it was (even though accompanied by much swelling and redness of one or more joints) completely arrested within twenty-four hours. To effect this, however, various concurrent circumstances were required, the chief of which were, a young subject, a constitution previously healthy, and a very recent attack.

Of the 226 cases of acute rheumatism above alluded to, the heart was affected in 52, or rather more than one-fifth; but taking the whole number of cases of rheumatism, including every form, the proportion of such complication I believe to be little more than half the above.

Of the total number of patients labouring under acute rheumatism, 137 were males, and 89 females; of the former, 28, and of the latter, 24, had symptoms of pericarditis; or, of the men, rather less than one in five, and of the women, rather more than one in four.

Of the 52 cases in which the heart was implicated, I find it recorded of only one that the pain in the limbs was simultaneously so alleviated as to give the least colouring to the idea of metastasis.

In 48 of the cases alluded to, the heart affection

was preceded by rheumatism of the limbs; in four, the pericarditis came on first, and was succeeded by acute rheumatism of the joints; in one patient, on the third day; in two, at the end of forty-eight hours; and in one, at the end of twenty-four.

The occurrence of inflammation about the heart always added to the duration of the illness: thus, of the 110 discharged within three weeks, (and, as I have already said, cured within a fortnight,) none had pericarditis; while it is among those who remained above a month that we find almost all our cases of that disease.

The fact of this complication being chiefly found in those who remained longest under treatment, must not, however, be understood as implying that the pericarditis supervened chiefly after a certain residence in the hospital; on the contrary, in the great majority of cases the patient was attacked at an early period, while in about one-third of the number the symptoms of the heart affection were fully developed at the period of their admission. Again, the prolonged stay of such cases in hospital was in great measure owing to this—that I invariably made it a rule not to discharge them immediately on the subsidence of the symptoms, but to detain them until I had expended every effort to promote the reabsorption of any effused lymph, and to render the action of the heart as quiet as possible.

The following table gives the ages of those who had rheumatic pericarditis :—

AGE	MALES.	FEMALES.	TOTAL.
10 to 15	3	1	4
15 — 20	9	7	16
20 — 25	6	10	16
25 — 30	4	6	10
30 — 35	3	0	3
35 — 40	0	0	0
40 — 45	1	0	1
45 — 50	1	0	1
50 — 55	0	0	0
55 — 60	1	0	1
	28	24	52

But few children are admitted into St. George's Hospital ; but from what I have seen in private and dispensary practice, I am inclined to believe that the proportion of cases of rheumatic pericarditis is considerably greater in young subjects than in those more advanced in years. Of those referred to in the preceding table of cases of acute rheumatism, but eight were under fifteen years of age, and of these, four, or one half, had pericarditis. Between 15 and 20, there were 48 patients, and of these 16 had peri-

carditis, or one-third; between 20 and 25 years of age there were 46 patients, and of these 16 had pericarditis, being very nearly the same proportion as the preceding; between 25 and 30, there were 42, and they afford only 10, or not quite one in four. After this the proportion of cases rapidly diminishes; for from thirty to thirty-five we have twenty-seven cases of rheumatic fever, giving us only three of pericarditis, or one in nine; and from thirty-five to forty we have also twenty-seven cases of rheumatism, without one of pericarditis.

CAPSULAR RHEUMATISM.

AGES.	MALES.	FAMALES.	TOTAL.
10 to 15	0	1	1
15 — 20	2	1	3
20 — 25	4	7	11
25 — 30	4	1	5
30 — 35	3	2	5
35 — 40	12	3	15
40 — 45	7	5	12
45 — 50	7	3	10
50 — 55	4	3	7
55 — 60	3	6	9
60 — 65	1	2	3
	47	34	81

According to the preceding table, capsular rheumatism would seem to be considerably more prevalent among men than women; much more equally diffused over the different periods of adult age than the form of the disease first described; and much more prone to affect persons under forty, than genuine gout is. At the same time, it is more the disease of middle life than either rheumatic fever or muscular rheumatism; from forty to forty-five years of age giving us twenty-two out of eighty-one cases, or rather more than one-fourth, which is a much larger proportion than holds good with respect to either of the others.

PERIODS DURING WHICH THE CASES OF CAPSULAR RHEUMATISM WERE UNDER TREATMENT.

	CURED.	RELIEVED.	
1 week	0	0	Fatal disorganization
2 —	8	1	of the joints . . . 3
3 —	11	0	Urethral discharge . 2
4 —	12	2	Inflammation of the
6 —	13	3	eye 2
8 —	13	0	
10 —	4	0	Of the fatal affections of the Joints recorded in Chap. VIII., several occurred in private practice, and are not included in the above.
12 —	4	0	
16 —	1	0	
20 —	1	0	
24 —	1	0	
	68	6	7

The most remarkable circumstance in this Table is the length of time during which some of the patients were under treatment, as compared with those labouring under the other forms of the disease. Of the cases of acute rheumatism, properly so called, as we have seen, more than one-half were discharged within three weeks, whereas the number of those with capsular rheumatism discharged within the same period amounts only to twenty out of eighty-one, or within a fraction of one-fourth. Of the cases of rheumatic fever, one-half were discharged cured in three weeks; of the cases of capsular rheumatism, more than half remained in hospital at the end of six weeks.

CASES OF RHEUMATISM CHIEFLY AFFECTING THE MUSCLES.

AGES.	MALES.	FEMALES.	TOTAL.
15 to 20	2	4	6
20 — 25	4	4	8
25 — 30	5	5	11
30 — 35	9	3	12
35 — 40	5	4	9
40 — 45	3	4	7
45 — 50	6	2	8
50 — 55	2	2	4
55 — 60	5	0	5
60 — 65	4	1	5
65 — 70	4	1	5
	49	31	80

So far as this Table goes, it would seem to show a remarkable difference between the ages at which the fibrous and muscular forms of rheumatism are most prevalent. In the former instance, from fifteen to twenty years of age gave about *two*-thirds of the entire number of cases; here the same period gives only 25 out of 80, being rather less than *one*-third. After the middle period of life, as we have seen above, the tendency to rheumatic fever progressively and rapidly diminishes. Not so with regard to the muscular form of the disease, which is spread more equally over the whole period of adult age: of the acute fibrous cases, only eight occurred between the ages of 50 and 60, being rather more than one twenty-eighth part of the whole number; whereas the same period gives 9 cases of the more chronic muscular form, being very nearly one-ninth of the whole.

PERIODS DURING WHICH CASES OF MUSCULAR RHEUMATISM WERE UNDER TREATMENT.

1 week	2
2 —	11
3 —	18
4 —	21
6 —	14
8 —	6
10 —, 11 —, 12 —	5
Date of discharge not recorded	3
Total	80

In about three-fourths of the above the pain was entirely, or almost entirely, removed; in the remaining fourth the disease was so far mitigated as to admit of the parties being made out-patients. But it must here be observed, that while the tables of the fibrous and synovial forms of the disease may be regarded as close approximations to the truth, that of muscular rheumatism is open to this objection,—that the majority of such cases are not admitted into the hospital, and do not enter at all into the above lists, which are confined to the very severe cases of what passes under the general denomination of chronic rheumatism.

The nervous and periosteal forms of the disease have not occurred in numbers or under circumstances to warrant any attempt at reducing them into a tabular form.

Before concluding the present volume, I am desirous of guarding myself against misapprehension. I have described the different kinds of rheumatism according to the forms and characters which I have by far most frequently seen it assume. I have divided the disease according to the part or texture primarily and principally affected, and described the different species or varieties as standing conspicuously distinct from each other. In the great majority of instances this will be found to hold good. If the

fibrous membranes be the primary seat of the attack, in an immense majority of cases they continue so throughout, and the same may be said of the others. But this, though very general, is not universal; and in some comparatively rare cases, the different forms pass into each other; a circumstance, I may remark, which goes far to prove the individuality of the disease in its various modifications. Another circumstance, which likewise requires to be kept in mind, is, that any of the five forms I have described,—the fibrous, capsular, muscular, nervous, and periosteal, may each severally exist either in the acute or chronic state, although some be much more common in the former, and others in the latter. The fibrous rheumatism, for example, is much more common in the acute form; the muscular much more so in the chronic; while the capsular very frequently passes from the former into the latter condition.

When the form of the disease is not changed, but its activity only is diminished, the modification of treatment required consists rather in a diminution of the energy with which we apply it, than in a change of its nature. But if, on the other hand, the type of the disease be altered, the nature of the remedies must be changed in a corresponding manner. Thus I have seen an attack set in as one of acute fibrous rheumatism, the pain, redness, and swelling being diffused over the whole hand, and becoming speedily mitigated under the remedies above recommended.

But sometimes (generally after having been stationary for a day or two) the pain has become limited to the loins and fleshy parts, while the back of the hand has been free from tumefaction. Again, the capsular form of the disease may give place to the nervous, and so on of the others. Now when either the above or analogous transmutations occur, our treatment must undergo a corresponding change, and the different kinds of remedies be variously alternated and combined.

Attention ought to be paid throughout to the state of the urine. If it does not freely eliminate the lithates from the system, the colchicum will generally give relief at the commencement, but ought to be discontinued when this object has been attained.

Any appearance of "periodicity" in the attacks of pain ought to be attended to, especially in the chronic forms of the disease, as under such circumstances Sulphate of Quina is frequently of use; and here (contrary to the recommendation at page 130, for a different kind of rheumatism) this form of the medicine is preferable to the Cinchona. On the same principle arsenic has been frequently found of service in such cases.

Another important point with reference to the chronic forms of the disease is, to observe the effects of warmth. If this, as sometimes happens, gives relief instead of increasing the pain, the more stimulating kind of medicine and general treatment almost always answer best.

I have only to add, in conclusion, that as prophylactic means against the disease in general, I believe chamois leather worn next the skin, and the diligent use of the flesh-brush night and morning, to be by by far the most efficient expedients; presuming, of course, that the patient has the sagacity to avoid all unnecessary exposure to atmospheric vicissitudes.—Let his maxim be, to keep the feet dry, and the general surface warm without being overheated.

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